

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: P910243

Luminaire Tested: DFN2DIP-TR4F0-100D110US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910243
REPORT IS A COMBINATION OF REPORTS P902027 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D110US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

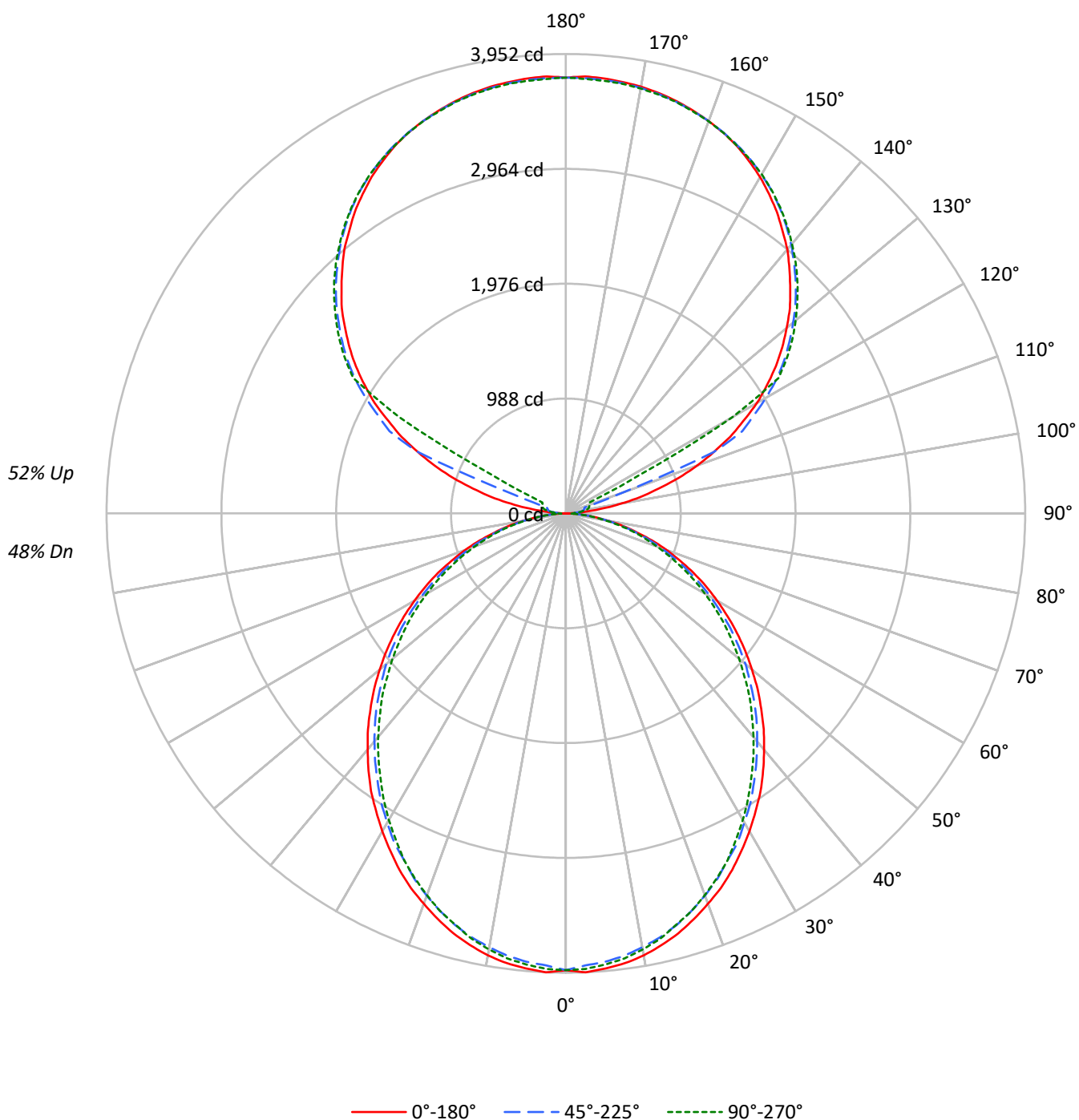
Lumens per Lamp: N/A
Luminaire Lumens: 20995.1 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 185.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910243

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910243

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US840-FLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	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	67	67	67	54	54	54	48	48	48
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46	40	40	40
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38	34	34	34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33	28	28	28
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25	21	21	21
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22	19	19	19
7	58	46	38	32	53	42	35	30	36	30	26	30	26	23	25	22	19	17	17	17
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	20	17	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	16	13	13	13
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3122	3122	3122
5°	3127	3078	3099
10°	3101	3037	3057
15°	3056	2987	2991
20°	2994	2917	2924
25°	2933	2834	2846
30°	2856	2757	2747
35°	2783	2666	2643
40°	2694	2573	2544
45°	2604	2481	2442
50°	2507	2384	2324
55°	2405	2272	2216
60°	2289	2139	2092
65°	2163	2001	1945
70°	2002	1833	1788
75°	1780	1632	1642
80°	1512	1376	1364
85°	1094	933	904

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2604 cd/sqm

TEST NUMBER: P910243

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	1.8
10°-20°	1040.6	5.0
20°-30°	1529.3	7.3
30°-40°	1776.1	8.5
40°-50°	1773.9	8.4
50°-60°	1546.8	7.4
60°-70°	1143.4	5.4
70°-80°	646.9	3.1
80°-90°	177.4	0.8
90°-100°	123.6	0.6
100°-110°	460.8	2.2
110°-120°	1222.2	5.8
120°-130°	2027.1	9.7
130°-140°	2153.3	10.3
140°-150°	2001.2	9.5
150°-160°	1608.9	7.7
160°-170°	1036.7	4.9
170°-180°	356.8	1.7
0°-30°	2939.7	14.0
0°-40°	4715.8	22.5
0°-60°	8036.5	38.3
0°-90°	10004.3	47.7
90°-120°	1806.7	8.6
90°-150°	7988.3	38.0
90°-180°	10991.0	52.4
0°-180°	20995.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	3	32	54	68	73	19
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1536
125°	2205	2241	2292	2311	2319	1967
135°	2729	2773	2797	2824	2819	2108
145°	3166	3163	3209	3228	3215	1980
155°	3486	3462	3494	3510	3489	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3744	3763	3736	358
180°	3749	3749	3749	3749	3749	

TEST NUMBER: P910243

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US840-FLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.2
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.9	160.1	189.8	198.1
105°	824.7	906.2	165.6	195.2	206.2
107.5°	1017.3	1084.9	171.1	200.7	211.7
110°	1201.8	1258.6	474.8	203.6	214.2

TEST NUMBER: P910243

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.5	1424.1	1378.1	208.7	217.1
115°	1559.7	1605.8	1673.9	417.8	222.6
117.5°	1719.9	1774.0	1820.4	1432.2	721.5
120°	1899.0	1939.5	1988.5	2021.0	1654.8
122.5°	2050.7	2094.2	2148.6	2164.7	2167.7
125°	2205.3	2240.8	2292.3	2311.3	2319.4
127.5°	2346.4	2384.4	2425.3	2452.4	2455.0
130°	2479.4	2522.9	2552.5	2582.5	2580.0
132.5°	2615.0	2650.5	2680.2	2704.6	2702.1
135°	2729.2	2772.6	2796.7	2824.2	2818.6
137.5°	2848.3	2880.8	2908.2	2935.3	2927.2
140°	2965.0	2986.8	3016.5	3040.9	3027.4
142.5°	3062.8	3081.8	3116.9	3138.6	3125.0
145°	3165.9	3163.0	3209.0	3228.1	3214.6
147.5°	3255.2	3247.1	3293.2	3306.7	3296.1
150°	3342.2	3323.2	3366.6	3382.7	3369.2
152.5°	3415.3	3393.7	3434.2	3450.7	3431.7
155°	3485.9	3461.6	3494.1	3510.3	3488.7
157.5°	3542.8	3521.2	3545.7	3564.7	3542.8
160°	3591.8	3575.3	3591.8	3607.8	3588.9
162.5°	3634.9	3618.9	3632.4	3651.4	3626.9
165°	3673.0	3656.8	3664.9	3683.9	3664.9
167.5°	3702.9	3686.5	3694.9	3713.9	3689.4
170°	3727.4	3711.0	3716.4	3735.5	3711.0
172.5°	3743.5	3727.4	3732.9	3751.9	3727.4
175°	3757.0	3738.0	3743.5	3762.6	3735.5
177.5°	3762.6	3743.5	3746.4	3765.4	3740.9
180°	3749.0	3749.0	3749.0	3749.0	3749.0

TEST NUMBER: P910243

CATALOG NUMBER: DFN2DIP-TR4F0-100D110US840-FLLONL

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	11.00	11.84	11.98	12.83	14.14	10.57	11.41	11.55	12.40	13.70
	3H	12.66	13.41	13.65	14.41	15.74	12.19	12.94	13.17	13.94	15.27
	4H	13.25	13.96	14.25	14.96	16.30	12.77	13.49	13.77	14.49	15.82
	6H	13.64	14.30	14.66	15.31	16.66	13.17	13.83	14.18	14.83	16.18
	8H	13.75	14.37	14.77	15.40	16.74	13.27	13.90	14.29	14.92	16.27
	12H	13.80	14.39	14.82	15.41	16.78	13.32	13.91	14.34	14.93	16.30
4H	2H	11.46	12.17	12.47	13.18	14.51	11.12	11.83	12.12	12.83	14.17
	3H	13.32	13.92	14.34	14.95	16.30	12.93	13.53	13.95	14.56	15.91
	4H	14.04	14.58	15.06	15.61	16.98	13.63	14.18	14.66	15.20	16.57
	6H	14.55	15.02	15.59	16.07	17.43	14.14	14.61	15.18	15.66	17.03
	8H	14.70	15.14	15.74	16.18	17.56	14.29	14.73	15.32	15.77	17.15
	12H	14.77	15.17	15.83	16.22	17.61	14.35	14.75	15.40	15.80	17.19
8H	4H	14.23	14.67	15.27	15.71	17.09	13.87	14.31	14.91	15.35	16.73
	6H	14.86	15.22	15.92	16.31	17.69	14.50	14.86	15.56	15.94	17.32
	8H	15.08	15.40	16.15	16.47	17.87	14.71	15.03	15.78	16.10	17.50
	12H	15.21	15.49	16.28	16.56	18.00	14.83	15.11	15.90	16.17	17.61
12H	4H	14.22	14.61	15.27	15.67	17.06	13.86	14.26	14.92	15.32	16.70
	6H	14.89	15.21	15.96	16.28	17.68	14.54	14.86	15.61	15.93	17.33
	8H	15.13	15.41	16.20	16.48	17.92	14.78	15.06	15.85	16.12	17.56