

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: P904794

Luminaire Tested: DFN2DIP-TR4F0-110D040US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904794
REPORT IS A COMBINATION OF REPORTS P900383 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D040US830-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

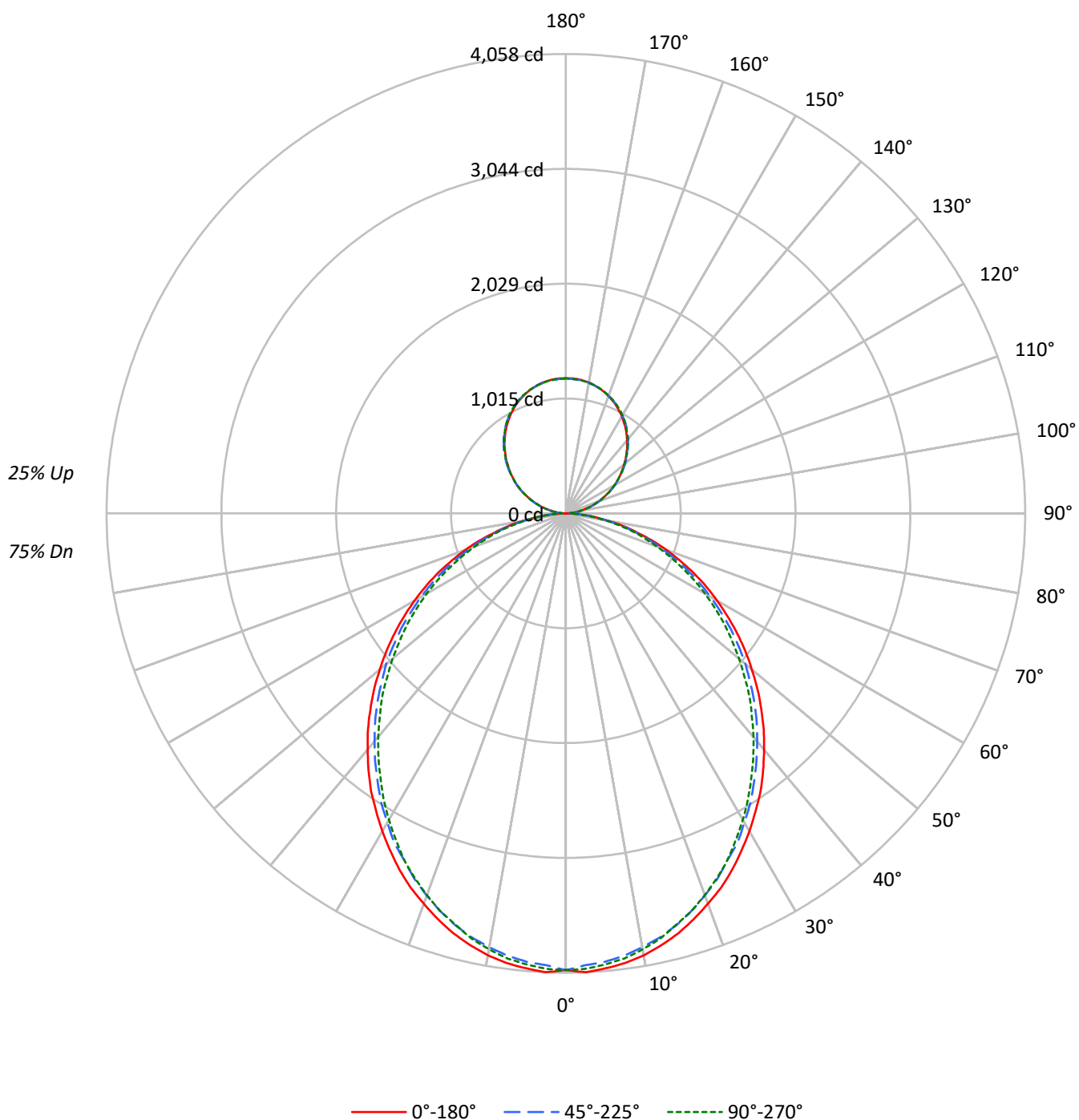
Lumens per Lamp: N/A
Luminaire Lumens: 13600.8 lumens
Efficiency: N/A
Efficacy: 95.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

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: P904794

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P904794

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US830-FLLFLL

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	108	108	108	108	97	97	97	88	88	88	80	80	80
1	104	99	95	91	98	94	91	88	86	83	80	78	76	74	70	69	67
2	94	87	80	75	89	83	77	72	75	71	67	68	65	62	62	59	57
3	86	76	68	62	82	73	66	60	66	61	56	60	56	52	55	51	48
4	79	68	59	53	75	65	57	51	59	53	48	54	49	45	49	45	42
5	73	60	52	46	69	58	50	44	53	46	42	48	43	39	44	40	36
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	36	32
7	62	49	41	35	59	47	40	34	44	37	32	40	34	30	37	32	29
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	26
9	54	41	33	28	51	40	32	27	37	30	26	34	28	25	31	27	23
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3205	3205	3205
5°	3210	3160	3182
10°	3184	3118	3138
15°	3137	3066	3071
20°	3074	2995	3002
25°	3011	2910	2922
30°	2932	2830	2821
35°	2858	2737	2713
40°	2766	2642	2611
45°	2674	2547	2507
50°	2574	2448	2386
55°	2469	2333	2275
60°	2350	2196	2147
65°	2221	2055	1997
70°	2056	1882	1836
75°	1827	1675	1686
80°	1553	1413	1401
85°	1124	959	928

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2674 cd/sqm

TEST NUMBER: P904794

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.8
10°-20°	1068.3	7.9
20°-30°	1570.0	11.5
30°-40°	1823.5	13.4
40°-50°	1821.2	13.4
50°-60°	1588.0	11.7
60°-70°	1173.9	8.6
70°-80°	664.2	4.9
80°-90°	178.7	1.3
90°-100°	73.8	0.5
100°-110°	234.4	1.7
110°-120°	401.2	2.9
120°-130°	527.6	3.9
130°-140°	592.2	4.4
140°-150°	580.8	4.3
150°-160°	487.2	3.6
160°-170°	323.1	2.4
170°-180°	112.9	0.8
0°-30°	3018.1	22.2
0°-40°	4841.6	35.6
0°-60°	8250.9	60.7
0°-90°	10267.6	75.5
90°-120°	709.4	5.2
90°-150°	2410.0	17.7
90°-180°	3333.0	24.5
0°-180°	13600.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3767	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1873
45°	2440	2413	2355	2312	2297	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	696
85°	159	155	152	140	136	177
90°	1	13	35	33	34	13
95°	52	63	64	64	63	58
105°	216	219	221	223	223	228
115°	403	408	406	406	403	398
125°	586	595	592	588	587	523
135°	757	768	771	770	767	585
145°	920	927	932	934	930	575
155°	1051	1054	1058	1063	1059	484
165°	1144	1143	1143	1150	1145	323
175°	1190	1187	1185	1192	1186	113
180°	1192	1192	1192	1192	1192	

TEST NUMBER: P904794

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.3	4034.3	4034.3	4034.3	4034.3
2.5°	4057.6	4038.3	3995.5	4034.3	4026.8
5°	4034.3	4019.0	3976.2	4007.0	3999.7
7.5°	4007.0	3984.0	3941.2	3972.5	3964.7
10°	3964.7	3937.5	3891.0	3921.8	3910.3
12.5°	3906.3	3883.2	3836.7	3856.0	3848.2
15°	3840.4	3817.3	3766.7	3782.3	3763.0
17.5°	3758.9	3735.9	3685.2	3704.6	3685.2
20°	3669.6	3646.5	3592.2	3603.7	3588.5
22.5°	3580.7	3545.7	3495.0	3495.0	3487.2
25°	3475.7	3444.9	3379.0	3386.5	3379.0
27.5°	3359.2	3332.1	3281.8	3270.3	3251.0
30°	3243.2	3211.9	3153.8	3142.3	3126.7
32.5°	3118.9	3095.9	3033.7	3010.2	2994.6
35°	2998.7	2960.1	2897.8	2874.4	2855.1
37.5°	2862.9	2827.9	2765.8	2738.6	2719.2
40°	2723.4	2692.1	2630.0	2595.4	2579.7
42.5°	2587.6	2556.3	2494.5	2455.4	2432.4
45°	2440.2	2413.0	2354.6	2312.2	2296.6
47.5°	2296.6	2269.5	2207.2	2164.5	2141.4
50°	2145.1	2125.8	2071.4	2017.1	1997.8
52.5°	1997.8	1970.6	1920.4	1877.5	1850.4
55°	1846.7	1823.3	1776.8	1730.2	1710.9
57.5°	1695.3	1675.9	1625.3	1578.8	1563.1
60°	1543.8	1528.6	1474.2	1431.4	1419.9
62.5°	1396.5	1369.3	1330.6	1291.9	1276.3
65°	1245.4	1221.9	1183.3	1148.3	1129.0
67.5°	1090.2	1070.5	1035.9	1008.8	993.2
70°	946.6	930.9	896.0	868.8	853.6
72.5°	799.3	783.6	764.3	737.2	725.6
75°	651.5	644.1	624.3	601.3	609.2
77.5°	519.8	504.2	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
90°	1.0	12.9	35.3	33.1	34.1
92.5°	22.2	30.2	31.3	32.3	32.3
95°	52.5	62.6	64.4	64.4	62.6
97.5°	87.4	96.7	100.7	100.7	100.7
100°	127.6	135.9	138.7	138.7	137.7
102.5°	170.0	176.2	180.1	181.2	180.1
105°	216.4	219.2	221.4	223.2	223.2
107.5°	262.4	266.7	266.7	267.4	262.4
110°	307.0	312.7	312.7	312.7	309.9



TEST NUMBER: P904794

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	355.1	361.3	360.1	357.3	355.1
115°	402.6	408.4	406.5	405.5	402.6
117.5°	449.7	457.6	452.6	449.7	446.9
120°	497.2	505.0	497.2	497.2	493.9
122.5°	540.3	550.4	545.4	542.4	540.3
125°	585.6	594.6	591.7	588.4	587.4
127.5°	629.8	640.9	637.0	632.6	629.8
130°	671.1	684.1	682.3	680.1	676.2
132.5°	717.5	727.5	728.3	723.2	720.4
135°	757.4	768.5	770.7	769.6	766.8
137.5°	802.0	811.0	812.8	812.0	807.8
140°	841.1	850.2	855.2	855.2	851.2
142.5°	881.5	890.4	893.2	894.4	890.4
145°	919.5	926.7	932.5	933.6	929.6
147.5°	953.7	962.6	967.0	968.7	964.8
150°	988.9	995.0	999.0	1002.2	999.0
152.5°	1020.2	1026.2	1031.3	1035.3	1031.3
155°	1051.4	1054.3	1057.5	1062.6	1059.3
157.5°	1078.5	1080.5	1082.3	1089.6	1084.5
160°	1102.5	1104.7	1105.7	1111.8	1107.5
162.5°	1124.7	1124.7	1125.9	1132.7	1127.7
165°	1143.9	1142.7	1142.7	1149.9	1144.9
167.5°	1161.1	1157.8	1157.8	1165.1	1160.0
170°	1174.0	1171.1	1170.1	1177.2	1171.1
172.5°	1183.0	1180.2	1179.0	1186.3	1180.2
175°	1190.2	1187.3	1185.2	1192.3	1186.3
177.5°	1194.2	1191.3	1189.1	1195.2	1189.1
180°	1192.3	1192.3	1192.3	1192.3	1192.3

TEST NUMBER: P904794

CATALOG NUMBER: DFN2DIP-TR4F0-110D040US830-FLLFLL

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	13.40	14.54	14.10	15.27	16.12	12.96	14.11	13.67	14.83	15.69
	3H	15.08	16.11	15.79	16.84	17.73	14.60	15.64	15.32	16.37	17.26
	4H	15.68	16.65	16.41	17.39	18.29	15.20	16.18	15.94	16.92	17.82
	6H	16.09	16.99	16.84	17.74	18.65	15.62	16.52	16.36	17.27	18.18
	8H	16.20	17.06	16.96	17.83	18.75	15.73	16.59	16.49	17.36	18.27
	12H	16.26	17.08	17.03	17.84	18.79	15.78	16.60	16.55	17.36	18.31
4H	2H	13.89	14.87	14.63	15.61	16.51	13.55	14.52	14.28	15.26	16.16
	3H	15.78	16.60	16.53	17.37	18.29	15.39	16.20	16.14	16.98	17.90
	4H	16.51	17.25	17.27	18.03	18.97	16.10	16.84	16.87	17.62	18.57
	6H	17.04	17.68	17.82	18.48	19.44	16.63	17.27	17.41	18.08	19.03
	8H	17.20	17.79	17.98	18.59	19.56	16.78	17.38	17.57	18.18	19.15
	12H	17.28	17.82	18.09	18.64	19.61	16.86	17.40	17.67	18.22	19.19
8H	4H	16.73	17.33	17.52	18.13	19.09	16.37	16.97	17.16	17.77	18.73
	6H	17.37	17.87	18.19	18.71	19.68	17.01	17.51	17.83	18.35	19.31
	8H	17.59	18.04	18.42	18.88	19.86	17.23	17.67	18.05	18.51	19.49
	12H	17.74	18.13	18.57	18.96	20.00	17.35	17.74	18.19	18.57	19.61
12H	4H	16.73	17.27	17.54	18.09	19.06	16.37	16.91	17.18	17.74	18.71
	6H	17.40	17.85	18.23	18.69	19.67	17.05	17.49	17.88	18.33	19.32
	8H	17.66	18.05	18.49	18.88	19.92	17.30	17.69	18.13	18.52	19.56