

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: P910196

Luminaire Tested: DFN2DIP-TR4F0-090D080US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910196
REPORT IS A COMBINATION OF REPORTS P900452 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D080US840-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

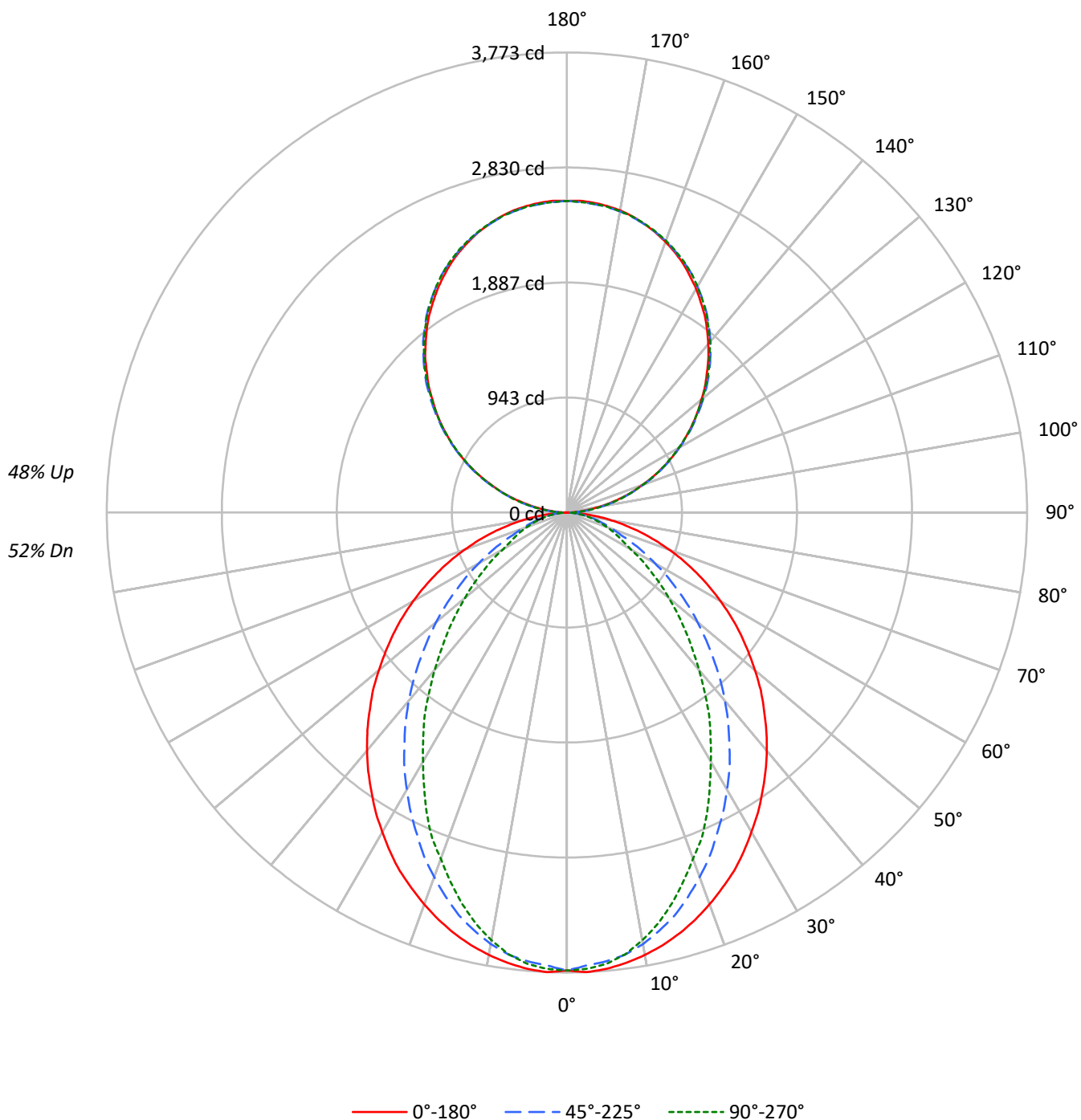
Lumens per Lamp: N/A
Luminaire Lumens: 14875.3 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910196

CATALOG NUMBER: DFN2DIP-TR4F0-090D080US840-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P910196

CATALOG NUMBER: DFN2DIP-TR4F0-090D080US840-RLLFLL

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
RCR																	
0	108	108	108	108	100	100	100	100	84	84	84		71	71	71		58
1	99	95	91	88	91	88	84	82	75	72	70		63	61	60		52
2	90	83	77	72	83	77	72	68	66	62	59		56	53	51		46
3	83	74	66	61	76	68	62	57	59	54	50		50	46	44		42
4	76	65	58	52	70	61	54	49	53	47	43		45	41	38		37
5	70	59	51	45	65	55	48	42	47	42	38		40	36	33		34
6	65	53	45	39	60	49	42	37	43	37	33		37	32	29		31
7	60	48	40	35	55	45	38	33	39	33	29		34	29	26		28
8	56	44	36	31	51	41	34	29	36	30	26		31	27	23		26
9	52	40	33	28	48	37	31	26	33	27	24		28	24	21		24
10	49	37	30	25	45	34	28	24	30	25	21		26	22	19		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2984	2984	2984
5°	2989	2937	2956
10°	2959	2879	2859
15°	2919	2784	2711
20°	2865	2653	2528
25°	2810	2506	2352
30°	2736	2355	2128
35°	2663	2193	1932
40°	2589	2025	1707
45°	2503	1839	1503
50°	2415	1651	1304
55°	2322	1450	1112
60°	2215	1240	915
65°	2091	1027	824
70°	1942	828	745
75°	1754	730	678
80°	1482	612	588
85°	1032	408	441

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2503 cd/sqm

TEST NUMBER: P910196

CATALOG NUMBER: DFN2DIP-TR4F0-090D080US840-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.1	2.4
10°-20°	966.5	6.5
20°-30°	1356.9	9.1
30°-40°	1479.1	9.9
40°-50°	1359.4	9.1
50°-60°	1067.6	7.2
60°-70°	694.9	4.7
70°-80°	357.7	2.4
80°-90°	98.6	0.7
90°-100°	158.1	1.1
100°-110°	502.4	3.4
110°-120°	859.7	5.8
120°-130°	1130.6	7.6
130°-140°	1269.1	8.5
140°-150°	1244.5	8.4
150°-160°	1043.9	7.0
160°-170°	692.3	4.7
170°-180°	242.0	1.6
0°-30°	2675.4	18.0
0°-40°	4154.5	27.9
0°-60°	6581.5	44.2
0°-90°	7732.7	52.0
90°-120°	1520.1	10.2
90°-150°	5164.3	34.7
90°-180°	7143.0	48.0
0°-180°	14875.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3716	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2771	2720	1492
35°	2794	2621	2322	2108	2033	1749
45°	2284	2057	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	592	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
90°	2	28	76	71	73	15
95°	112	134	138	138	134	125
105°	464	470	474	478	478	489
115°	863	875	871	869	863	853
125°	1255	1274	1268	1261	1259	1121
135°	1623	1647	1652	1649	1643	1254
145°	1970	1986	1998	2000	1992	1231
155°	2253	2259	2266	2277	2270	1037
165°	2451	2449	2449	2464	2453	691
175°	2550	2544	2540	2555	2542	242
180°	2555	2555	2555	2555	2555	



TEST NUMBER: P910196

CATALOG NUMBER: DFN2DIP-TR4F0-090D080US840-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.4	3756.4	3756.4	3756.4	3756.4
2.5°	3773.4	3756.4	3718.8	3753.2	3746.3
5°	3756.4	3739.4	3695.1	3725.7	3715.6
7.5°	3725.7	3705.5	3657.9	3671.3	3654.3
10°	3685.0	3661.2	3593.4	3582.9	3562.7
12.5°	3634.1	3603.5	3511.5	3491.3	3453.7
15°	3572.8	3535.3	3419.9	3355.3	3321.4
17.5°	3501.4	3447.0	3304.1	3229.4	3175.0
20°	3419.9	3351.7	3181.8	3097.1	3022.0
22.5°	3331.5	3253.3	3056.0	2940.5	2889.7
25°	3243.2	3134.2	2909.9	2770.7	2719.5
27.5°	3137.9	3022.0	2773.9	2614.1	2535.9
30°	3025.7	2896.2	2624.2	2451.1	2359.1
32.5°	2916.7	2760.2	2481.7	2277.7	2192.5
35°	2794.5	2621.0	2322.0	2107.8	2032.8
37.5°	2675.4	2488.3	2172.3	1937.5	1852.8
40°	2549.6	2345.8	2015.8	1774.5	1686.2
42.5°	2420.4	2203.0	1859.6	1607.9	1523.1
45°	2284.5	2056.6	1699.8	1458.1	1376.6
47.5°	2155.4	1914.1	1546.9	1305.3	1230.6
50°	2012.6	1771.2	1397.2	1162.5	1091.4
52.5°	1873.0	1618.0	1254.5	1030.1	965.5
55°	1737.0	1471.9	1104.7	901.0	836.4
57.5°	1597.8	1325.9	972.4	781.9	727.5
60°	1454.9	1183.0	832.8	659.6	605.2
62.5°	1315.8	1043.8	713.8	550.8	523.7
65°	1172.9	897.4	591.5	476.1	465.6
67.5°	1036.9	761.3	476.1	418.0	407.9
70°	894.1	629.0	394.3	360.3	346.6
72.5°	758.1	506.3	329.6	302.6	295.8
75°	625.4	387.4	272.0	248.1	244.9
77.5°	493.0	275.2	214.2	200.6	193.7
80°	370.4	197.3	163.0	149.7	149.7
82.5°	258.2	132.7	112.2	105.3	105.3
85°	146.0	74.6	64.5	64.5	64.5
87.5°	54.4	27.1	27.1	23.8	23.8
90°	2.3	27.8	75.5	70.9	73.2
92.5°	47.8	64.7	67.1	69.3	69.3
95°	112.5	134.0	137.8	137.8	134.0
97.5°	187.2	207.2	215.7	215.7	215.7
100°	273.5	291.1	297.3	297.3	295.0
102.5°	364.4	377.5	385.9	388.2	385.9
105°	463.7	469.9	474.5	478.4	478.4
107.5°	562.3	571.6	571.6	573.1	562.3
110°	657.8	670.1	670.1	670.1	664.0

TEST NUMBER: P910196

CATALOG NUMBER: DFN2DIP-TR4F0-090D080US840-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	761.0	774.2	771.8	765.7	761.0
115°	862.7	875.0	871.2	868.9	862.7
117.5°	963.6	980.6	969.8	963.6	957.5
120°	1065.3	1082.3	1065.3	1065.3	1058.3
122.5°	1157.7	1179.3	1168.5	1162.4	1157.7
125°	1254.8	1274.0	1267.9	1260.9	1258.7
127.5°	1349.6	1373.4	1364.9	1355.7	1349.6
130°	1438.1	1465.8	1462.0	1457.4	1449.0
132.5°	1537.5	1559.0	1560.6	1549.8	1543.7
135°	1623.0	1646.9	1651.5	1649.2	1643.1
137.5°	1718.5	1737.8	1741.6	1740.1	1730.8
140°	1802.5	1821.7	1832.5	1832.5	1824.0
142.5°	1888.8	1908.0	1914.2	1916.5	1908.0
145°	1970.4	1985.8	1998.1	2000.4	1992.0
147.5°	2043.6	2062.9	2072.0	2076.0	2067.5
150°	2119.1	2132.1	2140.6	2147.6	2140.6
152.5°	2186.1	2199.2	2210.0	2218.5	2210.0
155°	2253.1	2259.3	2266.2	2276.9	2270.1
157.5°	2310.9	2315.5	2319.4	2334.7	2324.0
160°	2362.5	2367.1	2369.4	2382.5	2373.3
162.5°	2410.2	2410.2	2412.6	2427.2	2416.4
165°	2451.0	2448.7	2448.7	2464.2	2453.4
167.5°	2488.0	2481.1	2481.1	2496.5	2485.7
170°	2515.8	2509.6	2507.3	2522.7	2509.6
172.5°	2535.1	2528.9	2526.6	2541.9	2528.9
175°	2550.4	2544.3	2539.6	2555.1	2541.9
177.5°	2558.9	2552.7	2548.1	2561.2	2548.1
180°	2555.1	2555.1	2555.1	2555.1	2555.1

TEST NUMBER: P910196

CATALOG NUMBER: DFN2DIP-TR4F0-090D080US840-RLLFLL

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	11.12	11.97	12.07	12.93	14.17	7.10	7.94	8.04	8.90	10.15
	3H	12.80	13.56	13.76	14.53	15.79	8.29	9.04	9.25	10.01	11.28
	4H	13.41	14.13	14.38	15.10	16.38	8.74	9.45	9.71	10.43	11.70
	6H	13.83	14.49	14.82	15.47	16.76	9.06	9.72	10.04	10.70	11.99
	8H	13.96	14.59	14.95	15.58	16.87	9.15	9.78	10.14	10.77	12.06
	12H	14.02	14.62	15.02	15.60	16.92	9.20	9.79	10.19	10.78	12.09
4H	2H	11.14	11.86	12.12	12.83	14.11	7.69	8.41	8.67	9.38	10.66
	3H	12.97	13.57	13.96	14.57	15.86	9.05	9.64	10.03	10.64	11.93
	4H	13.67	14.21	14.66	15.20	16.52	9.60	10.14	10.59	11.13	12.45
	6H	14.18	14.65	15.19	15.67	16.98	10.02	10.48	11.02	11.50	12.81
	8H	14.36	14.79	15.37	15.80	17.13	10.15	10.58	11.16	11.59	12.92
	12H	14.45	14.85	15.48	15.87	17.20	10.21	10.61	11.24	11.63	12.96
8H	4H	13.64	14.07	14.64	15.08	16.41	9.88	10.31	10.89	11.32	12.65
	6H	14.20	14.56	15.23	15.62	16.94	10.40	10.76	11.43	11.81	13.13
	8H	14.42	14.74	15.46	15.77	17.12	10.59	10.91	11.63	11.95	13.29
	12H	14.56	14.84	15.60	15.87	17.26	10.71	10.99	11.75	12.02	13.41
12H	4H	13.59	13.98	14.62	15.01	16.34	9.88	10.28	10.91	11.30	12.63
	6H	14.18	14.49	15.22	15.53	16.88	10.45	10.76	11.49	11.80	13.15
	8H	14.40	14.68	15.44	15.71	17.10	10.66	10.94	11.70	11.97	13.36

END OF REPORT