

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: P910304

Luminaire Tested: DFN2DIP-TR4F0-120D080US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910304
REPORT IS A COMBINATION OF REPORTS P900458 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D080US840-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

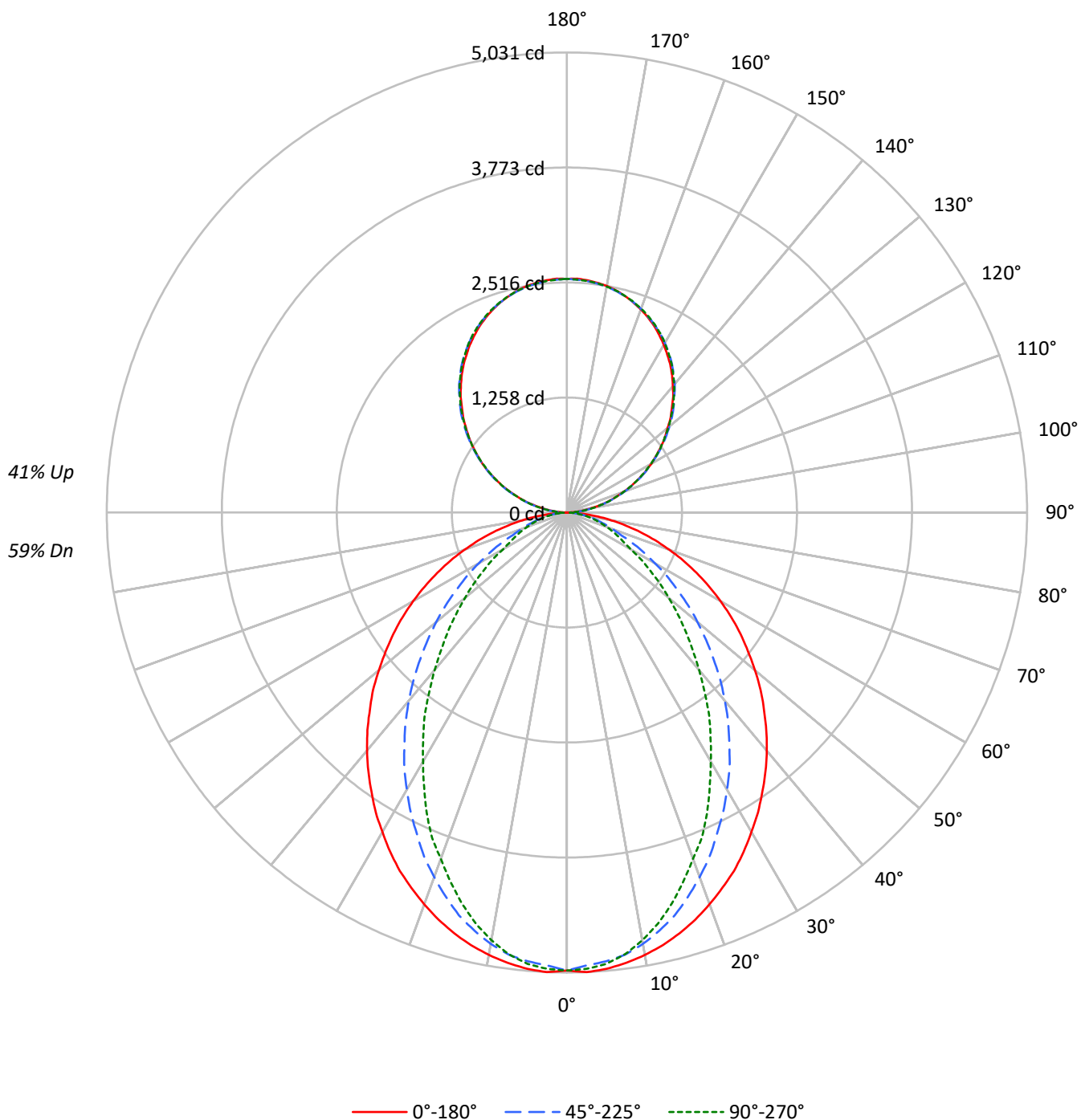
Lumens per Lamp: N/A
Luminaire Lumens: 17450.4 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 184.8
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: P910304

CATALOG NUMBER: DFN2DIP-TR4F0-120D080US840-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P910304

CATALOG NUMBER: DFN2DIP-TR4F0-120D080US840-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	30	10
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3979	3979	3979
5°	3985	3916	3941
10°	3946	3839	3812
15°	3892	3712	3614
20°	3820	3537	3371
25°	3746	3341	3136
30°	3647	3140	2838
35°	3551	2924	2576
40°	3452	2700	2276
45°	3338	2452	2004
50°	3219	2201	1738
55°	3096	1934	1483
60°	2953	1654	1221
65°	2789	1369	1098
70°	2589	1104	994
75°	2339	973	904
80°	1976	816	783
85°	1378	544	588

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3338 cd/sqm

TEST NUMBER: P910304

CATALOG NUMBER: DFN2DIP-TR4F0-120D080US840-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.7
10°-20°	1288.6	7.4
20°-30°	1809.2	10.4
30°-40°	1972.1	11.3
40°-50°	1812.6	10.4
50°-60°	1423.5	8.2
60°-70°	926.6	5.3
70°-80°	476.9	2.7
80°-90°	129.0	0.7
90°-100°	158.1	0.9
100°-110°	502.4	2.9
110°-120°	859.7	4.9
120°-130°	1130.6	6.5
130°-140°	1269.1	7.3
140°-150°	1244.5	7.1
150°-160°	1043.9	6.0
160°-170°	692.3	4.0
170°-180°	242.0	1.4
0°-30°	3567.2	20.4
0°-40°	5539.3	31.7
0°-60°	8775.3	50.3
0°-90°	10307.9	59.1
90°-120°	1520.1	8.7
90°-150°	5164.3	29.6
90°-180°	7143.0	40.9
0°-180°	17450.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5008	5008	5008	5008	5008	
5°	5008	4986	4927	4968	4954	475
15°	4764	4714	4560	4474	4429	1342
25°	4324	4179	3880	3694	3626	1989
35°	3726	3495	3096	2810	2710	2332
45°	3046	2742	2266	1944	1836	2352
55°	2316	1963	1473	1201	1115	2070
65°	1564	1196	789	635	621	1550
75°	834	516	363	331	326	882
85°	195	100	86	86	86	224
90°	2	28	76	71	73	17
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: P910304

CATALOG NUMBER: DFN2DIP-TR4F0-120D080US840-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5008.5	5008.5	5008.5	5008.5	5008.5
2.5°	5031.2	5008.5	4958.5	5004.2	4995.0
5°	5008.5	4985.9	4926.7	4967.6	4954.2
7.5°	4967.6	4940.7	4877.2	4895.0	4872.4
10°	4913.3	4881.6	4791.1	4777.2	4750.3
12.5°	4845.4	4804.6	4681.9	4655.1	4605.1
15°	4763.7	4713.7	4559.8	4473.7	4428.6
17.5°	4668.5	4595.9	4405.4	4306.0	4233.4
20°	4559.8	4469.0	4242.4	4129.4	4029.4
22.5°	4442.0	4337.7	4074.6	3920.7	3852.9
25°	4324.2	4178.9	3879.8	3694.2	3625.9
27.5°	4183.8	4029.4	3698.5	3485.6	3381.1
30°	4034.2	3861.6	3499.0	3268.1	3145.5
32.5°	3889.0	3680.3	3309.0	3036.9	2923.4
35°	3726.0	3494.6	3095.9	2810.4	2710.3
37.5°	3567.2	3317.7	2896.4	2583.3	2470.3
40°	3399.4	3127.8	2687.8	2366.0	2248.2
42.5°	3227.2	2937.3	2479.5	2143.8	2030.8
45°	3046.0	2742.1	2266.4	1944.3	1835.5
47.5°	2873.8	2552.1	2062.5	1740.4	1640.8
50°	2683.4	2361.7	1863.0	1549.9	1455.2
52.5°	2497.3	2157.3	1672.5	1373.4	1287.4
55°	2316.0	1962.6	1473.0	1201.2	1115.2
57.5°	2130.3	1767.8	1296.5	1042.6	970.0
60°	1940.0	1577.3	1110.3	879.6	807.0
62.5°	1754.3	1391.7	951.7	734.4	698.2
65°	1563.9	1196.5	788.7	634.8	620.9
67.5°	1382.6	1015.1	634.8	557.3	543.9
70°	1192.1	838.7	525.6	480.4	462.1
72.5°	1010.9	675.2	439.5	403.4	394.4
75°	833.8	516.4	362.6	330.8	326.5
77.5°	657.4	366.9	285.7	267.4	258.2
80°	493.9	263.1	217.3	199.5	199.5
82.5°	344.4	176.9	149.6	140.4	140.4
85°	194.8	99.6	86.0	86.0	86.0
87.5°	72.6	36.1	36.1	31.7	31.7
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: P910304

CATALOG NUMBER: DFN2DIP-TR4F0-120D080US840-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

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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	12.75	13.66	13.63	14.55	15.69	8.72	9.63	9.60	10.53	11.67
	3H	14.43	15.24	15.32	16.15	17.32	9.92	10.73	10.81	11.64	12.80
	4H	15.04	15.81	15.95	16.72	17.90	10.37	11.14	11.28	12.05	13.23
	6H	15.47	16.17	16.39	17.09	18.28	10.70	11.40	11.62	12.32	13.51
	8H	15.60	16.27	16.52	17.21	18.39	10.79	11.46	11.72	12.40	13.58
	12H	15.66	16.30	16.59	17.23	18.44	10.84	11.48	11.77	12.41	13.62
4H	2H	12.77	13.54	13.69	14.46	15.63	9.32	10.09	10.24	11.01	12.18
	3H	14.61	15.25	15.54	16.19	17.38	10.68	11.32	11.61	12.27	13.45
	4H	15.31	15.89	16.24	16.83	18.04	11.23	11.82	12.17	12.76	13.97
	6H	15.82	16.33	16.77	17.29	18.50	11.66	12.16	12.61	13.12	14.34
	8H	16.00	16.47	16.95	17.43	18.65	11.79	12.26	12.74	13.21	14.44
	12H	16.10	16.52	17.07	17.50	18.73	11.86	12.28	12.83	13.25	14.49
8H	4H	15.28	15.75	16.23	16.70	17.93	11.52	11.99	12.47	12.94	14.17
	6H	15.85	16.23	16.83	17.23	18.46	12.04	12.43	13.02	13.43	14.65
	8H	16.07	16.41	17.05	17.39	18.64	12.23	12.58	13.22	13.56	14.81
	12H	16.21	16.51	17.20	17.49	18.78	12.36	12.66	13.35	13.64	14.93
12H	4H	15.23	15.66	16.21	16.63	17.86	11.53	11.95	12.50	12.92	14.16
	6H	15.82	16.17	16.81	17.15	18.40	12.09	12.43	13.08	13.42	14.67
	8H	16.05	16.35	17.04	17.33	18.62	12.31	12.61	13.30	13.59	14.88