

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: P910320

Luminaire Tested: DFN2DIP-TR4F0-120D120US840-RLFL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910320
REPORT IS A COMBINATION OF REPORTS P900530 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D120US840-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

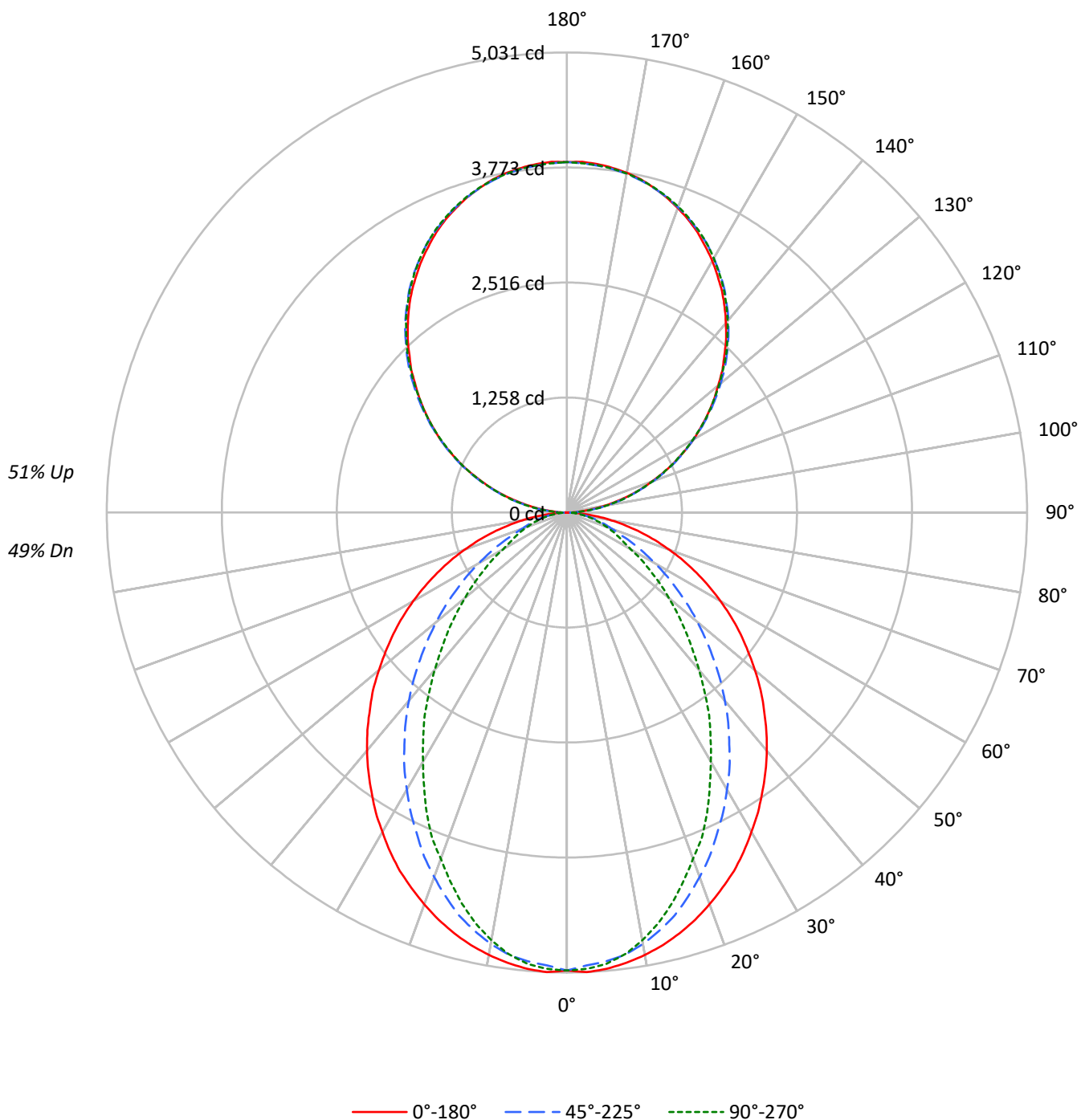
Lumens per Lamp: N/A
Luminaire Lumens: 21025.4 lumens
Efficiency: N/A
Efficacy: 96.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 217
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: P910320

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US840-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P910320

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US840-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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

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: P910320

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US840-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.2
10°-20°	1288.6	6.1
20°-30°	1809.2	8.6
30°-40°	1972.1	9.4
40°-50°	1812.6	8.6
50°-60°	1423.5	6.8
60°-70°	926.6	4.4
70°-80°	476.9	2.3
80°-90°	132.6	0.6
90°-100°	237.2	1.1
100°-110°	753.5	3.6
110°-120°	1289.5	6.1
120°-130°	1696.0	8.1
130°-140°	1903.6	9.1
140°-150°	1866.7	8.9
150°-160°	1565.9	7.4
160°-170°	1038.5	4.9
170°-180°	363.0	1.7
0°-30°	3567.2	17.0
0°-40°	5539.3	26.3
0°-60°	8775.3	41.7
0°-90°	10311.5	49.0
90°-120°	2280.2	10.8
90°-150°	7746.5	36.8
90°-180°	10714.0	51.0
0°-180°	21025.4	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°	3	42	113	106	110	21
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	

TEST NUMBER: P910320

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US840-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°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0



TEST NUMBER: P910320

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US840-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5

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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	11.85	12.67	12.82	13.65	14.94	7.82	8.64	8.79	9.63	10.91
	3H	13.52	14.26	14.51	15.25	16.56	9.01	9.75	9.99	10.74	12.05
	4H	14.13	14.83	15.13	15.82	17.14	9.46	10.16	10.46	11.15	12.47
	6H	14.55	15.19	15.56	16.19	17.52	9.78	10.42	10.79	11.42	12.75
	8H	14.68	15.29	15.69	16.30	17.63	9.87	10.48	10.89	11.50	12.82
	12H	14.74	15.32	15.76	16.33	17.68	9.92	10.50	10.93	11.50	12.86
4H	2H	11.87	12.56	12.87	13.56	14.87	8.42	9.11	9.42	10.11	11.42
	3H	13.69	14.27	14.71	15.30	16.63	9.77	10.34	10.78	11.37	12.70
	4H	14.39	14.91	15.40	15.93	17.28	10.31	10.84	11.33	11.86	13.21
	6H	14.90	15.35	15.93	16.39	17.74	10.73	11.19	11.76	12.23	13.58
	8H	15.08	15.50	16.11	16.53	17.90	10.86	11.29	11.89	12.32	13.69
	12H	15.17	15.55	16.22	16.60	17.97	10.93	11.31	11.98	12.36	13.73
8H	4H	14.35	14.78	15.38	15.81	17.17	10.59	11.02	11.62	12.05	13.42
	6H	14.92	15.27	15.97	16.34	17.71	11.11	11.46	12.17	12.54	13.90
	8H	15.14	15.44	16.20	16.50	17.88	11.30	11.61	12.37	12.67	14.05
	12H	15.27	15.54	16.34	16.60	18.02	11.42	11.69	12.49	12.75	14.17
12H	4H	14.30	14.69	15.35	15.73	17.10	10.60	10.98	11.65	12.03	13.40
	6H	14.89	15.20	15.96	16.26	17.64	11.16	11.47	12.22	12.53	13.91
	8H	15.11	15.38	16.18	16.44	17.86	11.37	11.64	12.44	12.70	14.12

END OF REPORT