

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: P926687

Luminaire Tested: DFN2DIP-TR4F0-120D120US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926687
REPORT IS A COMBINATION OF REPORTS P902049 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D120US950-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

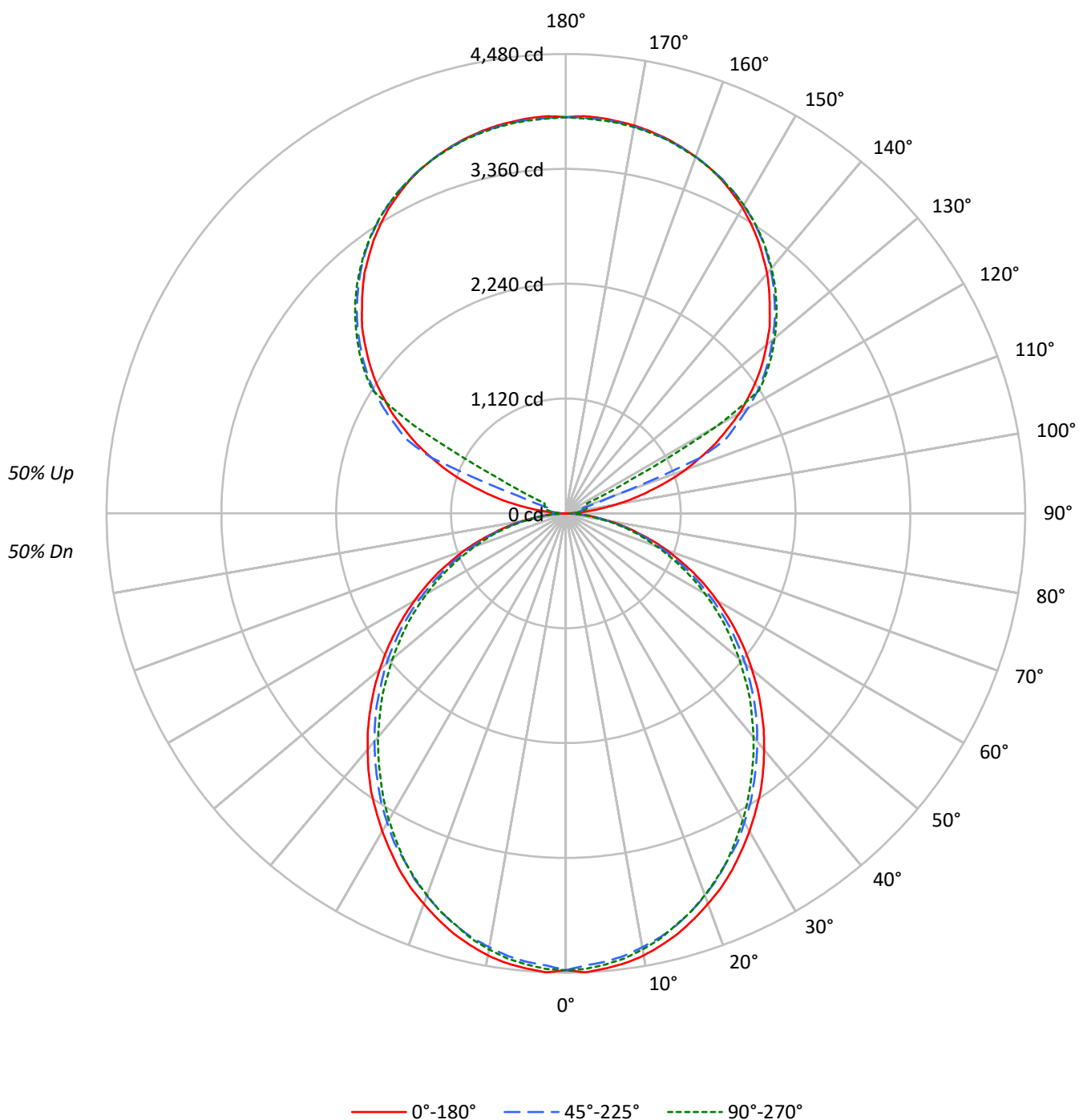
Lumens per Lamp: N/A
Luminaire Lumens: 22667.0 lumens
Efficiency: N/A
Efficacy: 104.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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: P926687

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US950-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P926687

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US950-FLONL

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	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3539	3539	3539
5°	3544	3489	3513
10°	3516	3442	3465
15°	3464	3386	3391
20°	3394	3307	3315
25°	3325	3213	3227
30°	3238	3125	3115
35°	3155	3022	2996
40°	3054	2917	2883
45°	2953	2813	2768
50°	2842	2703	2635
55°	2726	2576	2512
60°	2595	2425	2371
65°	2452	2269	2205
70°	2270	2078	2027
75°	2018	1850	1862
80°	1715	1560	1547
85°	1240	1058	1025

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2953 cd/sqm

TEST NUMBER: P926687

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US950-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	419.3	1.8
10°-20°	1179.6	5.2
20°-30°	1733.6	7.6
30°-40°	2013.5	8.9
40°-50°	2011.0	8.9
50°-60°	1753.5	7.7
60°-70°	1296.2	5.7
70°-80°	733.4	3.2
80°-90°	200.4	0.9
90°-100°	127.4	0.6
100°-110°	474.9	2.1
110°-120°	1259.5	5.6
120°-130°	2089.1	9.2
130°-140°	2219.1	9.8
140°-150°	2062.4	9.1
150°-160°	1658.1	7.3
160°-170°	1068.4	4.7
170°-180°	367.7	1.6
0°-30°	3332.5	14.7
0°-40°	5345.9	23.6
0°-60°	9110.4	40.2
0°-90°	11340.3	50.0
90°-120°	1861.9	8.2
90°-150°	8232.4	36.3
90°-180°	11327.0	50.0
0°-180°	22667.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4454	4454	4454	4454	4454	
5°	4454	4438	4390	4424	4416	423
15°	4240	4215	4159	4176	4155	1194
25°	3838	3804	3731	3739	3731	1766
35°	3311	3268	3200	3174	3152	2068
45°	2694	2664	2600	2553	2536	2079
55°	2039	2013	1962	1910	1889	1823
65°	1375	1349	1306	1268	1247	1360
75°	719	711	689	664	673	768
85°	175	171	167	154	150	196
90°	3	34	56	70	75	21
95°	182	89	109	123	120	215
105°	850	934	171	201	212	908
115°	1607	1655	1725	430	229	1582
125°	2273	2309	2362	2382	2390	2027
135°	2812	2857	2882	2910	2905	2173
145°	3263	3260	3307	3327	3313	2041
155°	3592	3567	3601	3618	3595	1655
165°	3785	3769	3777	3796	3777	1069
175°	3872	3852	3858	3878	3850	368
180°	3864	3864	3864	3864	3864	

TEST NUMBER: P926687

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4454.5	4454.5	4454.5	4454.5	4454.5
2.5°	4480.4	4459.0	4411.8	4454.5	4446.3
5°	4454.5	4437.6	4390.4	4424.5	4416.3
7.5°	4424.5	4399.0	4351.8	4386.3	4377.7
10°	4377.7	4347.7	4296.3	4330.4	4317.7
12.5°	4313.1	4287.7	4236.3	4257.7	4249.0
15°	4240.4	4215.0	4159.1	4176.3	4155.0
17.5°	4150.5	4125.0	4069.1	4090.5	4069.1
20°	4051.8	4026.4	3966.4	3979.1	3962.3
22.5°	3953.7	3915.0	3859.1	3859.1	3850.5
25°	3837.8	3803.7	3731.0	3739.2	3731.0
27.5°	3709.2	3679.2	3623.8	3611.0	3589.7
30°	3581.0	3546.5	3482.4	3469.7	3452.4
32.5°	3443.7	3418.4	3349.7	3323.8	3306.6
35°	3311.0	3268.4	3199.7	3173.9	3152.5
37.5°	3161.1	3122.5	3053.8	3023.9	3002.5
40°	3007.1	2972.6	2903.9	2865.7	2848.5
42.5°	2857.1	2822.6	2754.4	2711.3	2685.8
45°	2694.4	2664.4	2599.8	2553.1	2535.8
47.5°	2535.8	2505.8	2437.2	2390.0	2364.5
50°	2368.6	2347.2	2287.2	2227.2	2205.8
52.5°	2205.8	2175.9	2120.5	2073.1	2043.2
55°	2039.1	2013.2	1961.8	1910.5	1889.1
57.5°	1871.8	1850.5	1794.6	1743.2	1726.0
60°	1704.6	1687.8	1627.8	1580.6	1567.8
62.5°	1542.0	1511.9	1469.3	1426.5	1409.2
65°	1375.2	1349.2	1306.5	1267.9	1246.6
67.5°	1203.9	1182.0	1143.8	1113.9	1096.6
70°	1045.2	1027.9	989.3	959.3	942.6
72.5°	882.5	865.3	843.9	814.0	801.2
75°	719.4	711.2	689.4	664.0	672.6
77.5°	573.9	556.7	548.1	535.3	522.6
80°	428.5	424.0	415.4	402.7	394.0
82.5°	291.3	291.3	287.2	270.0	270.0
85°	175.4	171.3	167.2	154.1	150.0
87.5°	77.3	68.6	60.0	47.2	42.7
90°	2.7	33.5	55.8	70.0	75.4
92.5°	70.0	58.8	67.1	72.7	75.4
95°	181.5	89.3	108.9	123.2	120.2
97.5°	327.0	98.0	142.4	151.0	153.7
100°	494.9	111.9	159.3	181.5	187.3
102.5°	679.2	673.9	164.9	195.6	204.2
105°	849.8	933.9	170.7	201.2	212.5
107.5°	1048.4	1118.1	176.3	206.8	218.1
110°	1238.6	1297.1	489.3	209.8	220.8

TEST NUMBER: P926687

CATALOG NUMBER: DFN2DIP-TR4F0-120D120US950-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1417.5	1467.6	1420.2	215.1	223.7
115°	1607.4	1654.9	1724.9	430.5	229.4
117.5°	1772.4	1828.2	1876.0	1475.9	743.6
120°	1957.0	1998.8	2049.3	2082.9	1705.4
122.5°	2113.4	2158.2	2214.3	2230.9	2233.9
125°	2272.7	2309.3	2362.4	2381.9	2390.2
127.5°	2418.1	2457.3	2499.5	2527.3	2530.0
130°	2555.2	2600.0	2630.6	2661.5	2658.8
132.5°	2695.0	2731.5	2762.0	2787.3	2784.6
135°	2812.5	2857.3	2882.2	2910.5	2904.8
137.5°	2935.4	2968.8	2997.1	3024.9	3016.6
140°	3055.6	3078.1	3108.6	3133.9	3120.0
142.5°	3156.4	3176.1	3212.2	3234.4	3220.5
145°	3262.7	3259.7	3307.1	3326.8	3312.8
147.5°	3354.6	3346.3	3393.9	3407.8	3396.8
150°	3444.2	3424.7	3469.5	3486.1	3472.2
152.5°	3519.6	3497.4	3539.2	3556.1	3536.6
155°	3592.3	3567.4	3601.0	3617.6	3595.3
157.5°	3651.1	3628.8	3654.1	3673.7	3651.1
160°	3701.5	3684.6	3701.5	3718.1	3698.6
162.5°	3746.1	3729.5	3743.4	3763.0	3737.8
165°	3785.2	3768.6	3776.9	3796.5	3776.9
167.5°	3816.1	3799.1	3807.8	3827.4	3802.2
170°	3841.3	3824.4	3830.0	3849.6	3824.4
172.5°	3857.9	3841.3	3847.0	3866.6	3841.3
175°	3871.8	3852.3	3857.9	3877.5	3849.6
177.5°	3877.5	3857.9	3860.9	3880.5	3855.3
180°	3863.6	3863.6	3863.6	3863.6	3863.6

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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	11.66	12.52	12.62	13.49	14.77	11.23	12.09	12.19	13.06	14.33
	3H	13.32	14.09	14.29	15.07	16.37	12.85	13.62	13.82	14.60	15.90
	4H	13.91	14.64	14.89	15.62	16.93	13.44	14.17	14.42	15.15	16.45
	6H	14.31	14.98	15.30	15.97	17.29	13.83	14.51	14.83	15.50	16.81
	8H	14.41	15.05	15.41	16.06	17.37	13.94	14.58	14.94	15.59	16.90
	12H	14.46	15.07	15.46	16.07	17.41	13.98	14.59	14.98	15.59	16.93
4H	2H	12.12	12.85	13.11	13.84	15.14	11.78	12.51	12.77	13.49	14.80
	3H	13.99	14.60	14.99	15.61	16.93	13.60	14.21	14.59	15.22	16.54
	4H	14.70	15.26	15.71	16.27	17.61	14.30	14.86	15.30	15.86	17.20
	6H	15.22	15.70	16.23	16.73	18.06	14.81	15.29	15.82	16.32	17.66
	8H	15.37	15.82	16.38	16.84	18.19	14.96	15.40	15.97	16.43	17.78
	12H	15.44	15.85	16.48	16.88	18.24	15.02	15.42	16.06	16.46	17.82
8H	4H	14.90	15.35	15.92	16.37	17.72	14.54	14.99	15.56	16.01	17.36
	6H	15.53	15.90	16.57	16.97	18.32	15.17	15.54	16.21	16.60	17.95
	8H	15.75	16.08	16.80	17.13	18.50	15.38	15.71	16.43	16.76	18.13
	12H	15.88	16.17	16.94	17.22	18.63	15.50	15.79	16.55	16.83	18.24
12H	4H	14.88	15.29	15.92	16.33	17.69	14.53	14.94	15.57	15.98	17.33
	6H	15.56	15.89	16.61	16.94	18.31	15.21	15.54	16.26	16.59	17.95
	8H	15.80	16.09	16.86	17.14	18.55	15.45	15.73	16.50	16.78	18.19