

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: P923239

Luminaire Tested: DFN2DIP-SQ4F0-110D120US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923239
REPORT IS A COMBINATION OF REPORTS P901698 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D120US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

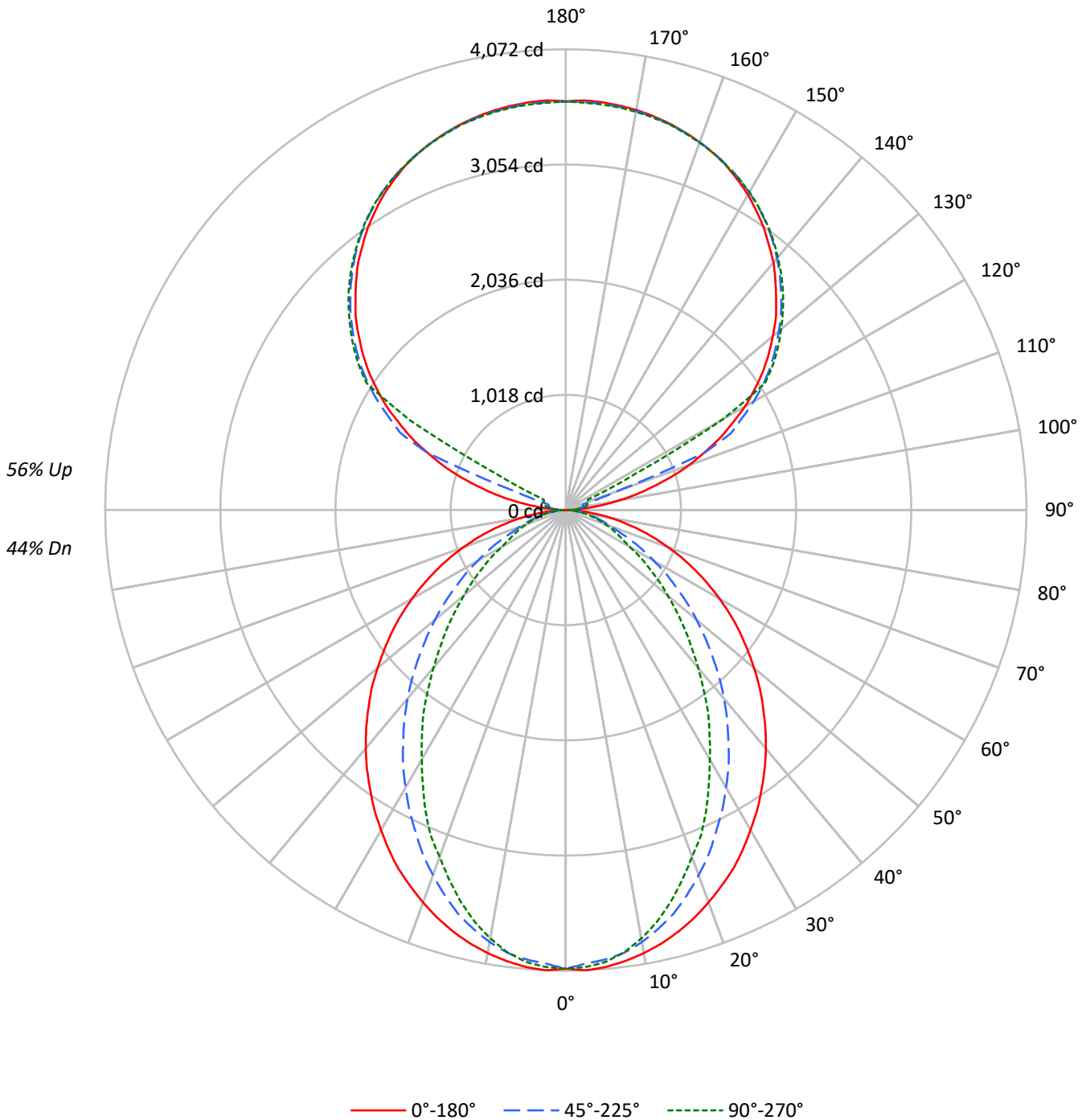
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18931.0 lumens
Efficiency: N/A
Efficacy: 97.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 195.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923239
CATALOG NUMBER: DFN2DIP-SQ4F0-110D120US940-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P923239
 CATALOG NUMBER: DFN2DIP-SQ4F0-110D120US940-RLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20					20				20			
RC	80				70				50					30				10	0		
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44	44	44	44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44	38	38	38	38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37	32	32	32	32
3	81	72	65	59	74	66	60	55	55	51	47	46	42	40	36	34	32	28	28	28	28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28	24	24	24	24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25	21	21	21	21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22	19	19	19	19
7	58	46	39	33	53	43	36	31	37	31	27	31	27	24	25	22	20	17	17	17	17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15	15	15	15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14	14	14	14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2845	2845	2845
5°	2849	2800	2818
10°	2821	2746	2727
15°	2782	2655	2586
20°	2731	2531	2413
25°	2678	2391	2246
30°	2607	2248	2033
35°	2538	2094	1846
40°	2468	1934	1632
45°	2386	1757	1438
50°	2301	1578	1248
55°	2213	1387	1065
60°	2110	1187	878
65°	1993	984	791
70°	1850	794	717
75°	1671	701	654
80°	1411	590	570
85°	983	397	434

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2386 cd/sqm



TEST NUMBER: P923239

CATALOG NUMBER: DFN2DIP-SQ4F0-110D120US940-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	2.0
10°-20°	1043.0	5.5
20°-30°	1464.4	7.7
30°-40°	1596.2	8.4
40°-50°	1467.1	7.7
50°-60°	1152.2	6.1
60°-70°	750.0	4.0
70°-80°	386.0	2.0
80°-90°	104.9	0.6
90°-100°	119.1	0.6
100°-110°	443.9	2.3
110°-120°	1177.3	6.2
120°-130°	1952.7	10.3
130°-140°	2074.2	11.0
140°-150°	1927.7	10.2
150°-160°	1549.8	8.2
160°-170°	998.7	5.3
170°-180°	343.7	1.8
0°-30°	2887.3	15.3
0°-40°	4483.6	23.7
0°-60°	7102.9	37.5
0°-90°	8343.8	44.1
90°-120°	1740.3	9.2
90°-150°	7694.9	40.6
90°-180°	10587.0	55.9
0°-180°	18931.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4054	4054	4054	4054	4054	
5°	4054	4036	3988	4021	4010	384
15°	3856	3815	3691	3621	3584	1087
25°	3500	3382	3140	2990	2935	1610
35°	3016	2829	2506	2275	2194	1888
45°	2466	2220	1834	1574	1486	1904
55°	1875	1588	1192	972	903	1675
65°	1266	968	638	514	502	1255
75°	675	418	294	268	264	714
85°	158	81	70	70	70	181
90°	2	31	52	66	70	18
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	



TEST NUMBER: P923239

CATALOG NUMBER: DFN2DIP-SQ4F0-110D120US940-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4054.0	4054.0	4054.0	4054.0	4054.0
2.5°	4072.3	4054.0	4013.5	4050.5	4043.1
5°	4054.0	4035.7	3987.8	4020.9	4010.0
7.5°	4020.9	3999.1	3947.7	3962.1	3943.8
10°	3976.9	3951.2	3878.0	3866.7	3845.0
12.5°	3922.0	3888.9	3789.7	3767.8	3727.3
15°	3855.8	3815.4	3690.8	3621.1	3584.5
17.5°	3778.8	3720.0	3565.9	3485.2	3426.5
20°	3690.8	3617.2	3433.9	3342.4	3261.4
22.5°	3595.5	3510.9	3298.1	3173.5	3118.6
25°	3500.1	3382.5	3140.4	2990.2	2934.9
27.5°	3386.4	3261.4	2993.7	2821.2	2736.7
30°	3265.4	3125.6	2832.2	2645.3	2546.0
32.5°	3147.8	2978.8	2678.3	2458.1	2366.2
35°	3015.9	2828.6	2506.0	2274.8	2193.8
37.5°	2887.4	2685.4	2344.4	2091.0	1999.6
40°	2751.6	2531.7	2175.5	1915.0	1819.7
42.5°	2612.2	2377.5	2007.0	1735.3	1643.8
45°	2465.5	2219.5	1834.5	1573.7	1485.8
47.5°	2326.1	2065.7	1669.5	1408.6	1328.1
50°	2171.9	1911.6	1508.0	1254.5	1177.9
52.5°	2021.3	1746.1	1353.8	1111.7	1042.0
55°	1874.6	1588.5	1192.2	972.3	902.7
57.5°	1724.4	1430.8	1049.4	843.9	785.1
60°	1570.2	1276.8	898.8	711.9	653.2
62.5°	1420.0	1126.5	770.3	594.4	565.2
65°	1265.8	968.4	638.4	513.8	502.5
67.5°	1119.1	821.7	513.8	451.1	440.2
70°	964.9	678.9	425.4	388.9	374.1
72.5°	818.1	546.5	355.8	326.5	319.1
75°	674.9	418.0	293.5	267.8	264.3
77.5°	532.1	297.0	231.2	216.4	209.0
80°	399.8	212.9	175.9	161.6	161.6
82.5°	278.7	143.2	121.1	113.7	113.7
85°	157.7	80.6	69.6	69.6	69.6
87.5°	58.8	29.2	29.2	25.7	25.7
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3



TEST NUMBER: P923239

CATALOG NUMBER: DFN2DIP-SQ4F0-110D120US940-RLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3



TEST NUMBER: P923239
 CATALOG NUMBER: DFN2DIP-SQ4F0-110D120US940-RLONL

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	10.21	11.00	11.22	12.01	13.37	6.17	6.96	7.19	7.97	9.33
	3H	11.89	12.59	12.91	13.62	14.99	7.36	8.06	8.38	9.09	10.46
	4H	12.50	13.16	13.54	14.19	15.58	7.81	8.47	8.84	9.50	10.88
	6H	12.92	13.53	13.97	14.57	15.96	8.13	8.74	9.17	9.77	11.17
	8H	13.05	13.63	14.10	14.68	16.07	8.22	8.80	9.27	9.85	11.24
	12H	13.11	13.66	14.17	14.71	16.12	8.26	8.81	9.31	9.85	11.27
4H	2H	10.22	10.89	11.27	11.92	13.30	6.77	7.43	7.81	8.46	9.84
	3H	12.05	12.61	13.10	13.66	15.06	8.11	8.66	9.16	9.72	11.12
	4H	12.75	13.25	13.80	14.30	15.72	8.66	9.16	9.71	10.21	11.63
	6H	13.27	13.70	14.33	14.77	16.19	9.08	9.51	10.14	10.58	12.00
	8H	13.44	13.85	14.51	14.91	16.34	9.21	9.61	10.27	10.67	12.10
	12H	13.54	13.90	14.62	14.98	16.42	9.27	9.63	10.35	10.71	12.15
8H	4H	12.71	13.12	13.78	14.18	15.61	8.94	9.34	10.00	10.41	11.84
	6H	13.28	13.62	14.37	14.72	16.15	9.46	9.79	10.55	10.90	12.32
	8H	13.50	13.79	14.60	14.88	16.33	9.65	9.94	10.74	11.03	12.48
	12H	13.64	13.90	14.74	14.98	16.47	9.77	10.02	10.86	11.11	12.59
12H	4H	12.66	13.03	13.75	14.11	15.54	8.94	9.31	10.02	10.39	11.82
	6H	13.26	13.55	14.35	14.64	16.09	9.51	9.80	10.60	10.89	12.34
	8H	13.48	13.74	14.58	14.82	16.31	9.72	9.97	10.82	11.06	12.55