

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: P923247

Luminaire Tested: DFN2DIP-SQ4F0-110D160US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923247
REPORT IS A COMBINATION OF REPORTS P901734 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D160US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

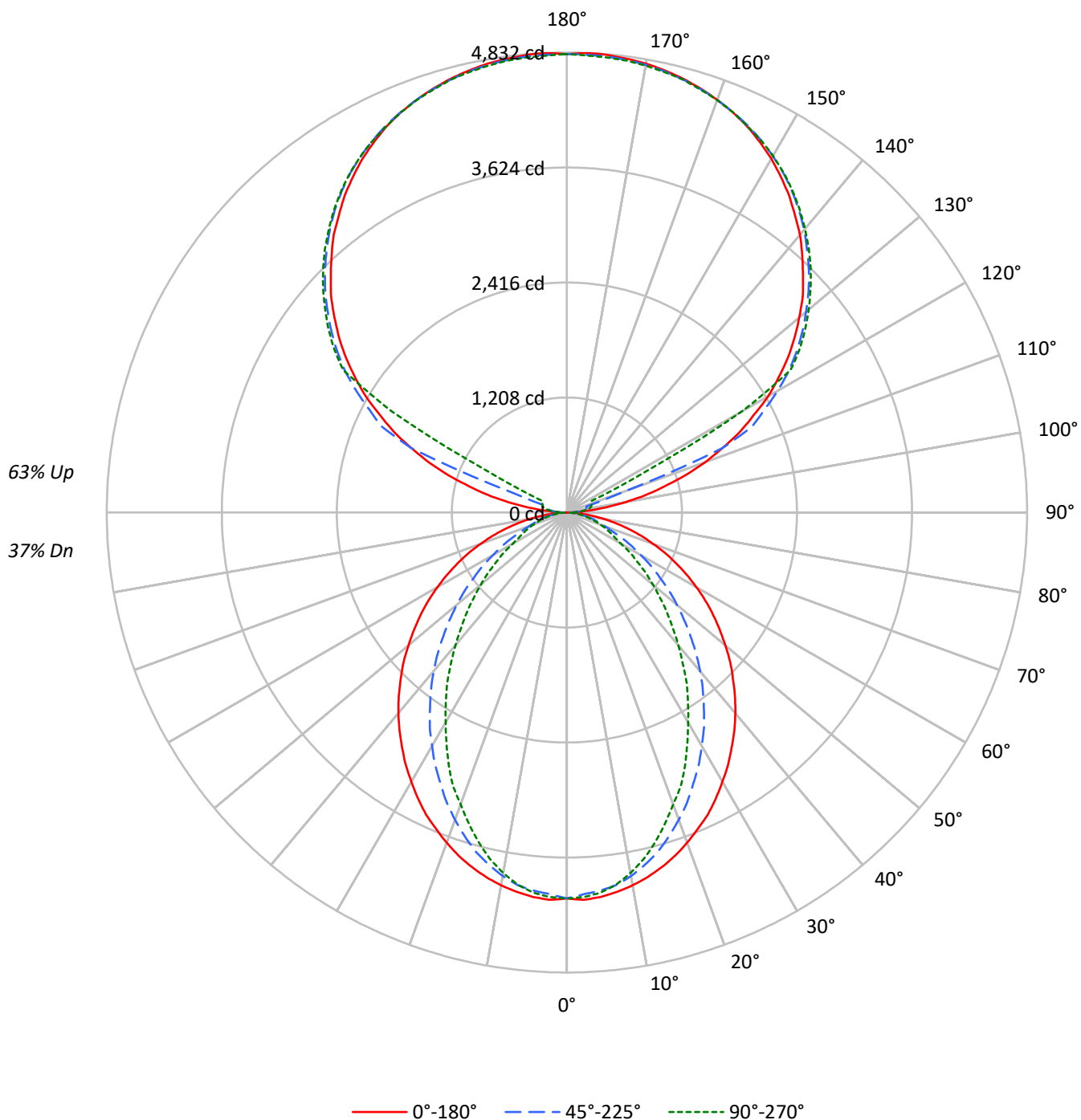
Lumens per Lamp: N/A
Luminaire Lumens: 22462.2 lumens
Efficiency: N/A
Efficacy: 98.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 227.2
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

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Luminous Intensity Polar Plot



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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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	44	44	44
1	95	91	87	84	86	83	80	77	67	65	63	53	52	50	40	39	38
2	87	80	74	69	79	73	68	64	59	56	53	47	45	42	35	34	33
3	80	71	64	58	72	64	58	54	53	48	45	42	39	36	32	30	28
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	29	26	25
5	67	56	48	42	61	51	44	39	42	37	33	34	30	27	26	23	22
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19
7	57	45	38	32	52	42	35	30	35	29	26	28	24	21	22	19	17
8	53	41	34	29	48	38	31	27	31	26	23	26	22	19	20	17	15
9	49	38	30	26	45	35	28	24	29	24	21	23	20	17	18	16	14
10	46	34	28	23	42	32	26	21	27	22	19	22	18	16	17	15	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: 90°

Vertical Angle: 90°

Luminance: 2581 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	1.7
10°-20°	1043.0	4.6
20°-30°	1464.4	6.5
30°-40°	1596.2	7.1
40°-50°	1467.1	6.5
50°-60°	1152.2	5.1
60°-70°	750.0	3.3
70°-80°	386.0	1.7
80°-90°	107.0	0.5
90°-100°	158.8	0.7
100°-110°	591.9	2.6
110°-120°	1569.8	7.0
120°-130°	2603.6	11.6
130°-140°	2765.6	12.3
140°-150°	2570.3	11.4
150°-160°	2066.5	9.2
160°-170°	1331.6	5.9
170°-180°	458.3	2.0
0°-30°	2887.3	12.9
0°-40°	4483.6	20.0
0°-60°	7102.9	31.6
0°-90°	8346.0	37.2
90°-120°	2320.4	10.3
90°-150°	10259.9	45.7
90°-180°	14116.0	62.8
0°-180°	22462.2	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°	3	42	70	87	94	21
95°	226	111	136	154	150	268
105°	1059	1164	213	251	265	1132
115°	2003	2062	2150	537	286	1972
125°	2832	2878	2944	2969	2979	2526
135°	3505	3561	3592	3627	3620	2708
145°	4066	4062	4122	4146	4129	2543
155°	4477	4446	4488	4508	4481	2063
165°	4717	4697	4707	4732	4707	1333
175°	4825	4801	4808	4832	4798	459
180°	4815	4815	4815	4815	4815	

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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°	3.3	41.8	69.5	87.3	93.9
92.5°	87.3	73.2	83.6	90.6	93.9
95°	226.3	111.3	135.7	153.5	149.8
97.5°	407.5	122.1	177.5	188.2	191.5
100°	616.9	139.5	198.6	226.3	233.4
102.5°	846.5	839.9	205.6	243.7	254.4
105°	1059.2	1163.9	212.7	250.7	264.7
107.5°	1306.5	1393.5	219.7	257.8	271.8
110°	1543.6	1616.5	609.8	261.4	275.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1766.7	1829.2	1770.0	268.1	278.8
115°	2003.3	2062.4	2149.7	536.6	285.9
117.5°	2208.9	2278.4	2338.1	1839.5	926.8
120°	2439.0	2491.1	2553.9	2595.8	2125.4
122.5°	2633.8	2689.7	2759.6	2780.3	2784.0
125°	2832.4	2877.9	2944.2	2968.6	2978.9
127.5°	3013.6	3062.5	3115.0	3149.8	3153.1
130°	3184.6	3240.4	3278.5	3316.9	3313.6
132.5°	3358.7	3404.2	3442.3	3473.7	3470.4
135°	3505.1	3561.0	3592.1	3627.2	3620.2
137.5°	3658.2	3700.1	3735.2	3770.0	3759.6
140°	3808.0	3836.1	3874.2	3905.7	3888.3
142.5°	3933.8	3958.2	4003.3	4031.1	4013.7
145°	4066.2	4062.5	4121.7	4146.0	4128.7
147.5°	4180.8	4170.4	4229.6	4247.0	4233.3
150°	4292.5	4268.1	4324.0	4344.7	4327.3
152.5°	4386.4	4358.7	4410.8	4432.0	4407.5
155°	4477.0	4446.0	4487.8	4508.5	4480.8
157.5°	4550.3	4522.6	4554.0	4578.4	4550.3
160°	4613.2	4592.0	4613.2	4633.9	4609.4
162.5°	4668.6	4648.0	4665.3	4689.7	4658.3
165°	4717.4	4696.7	4707.1	4731.5	4707.1
167.5°	4755.9	4734.8	4745.6	4769.9	4738.5
170°	4787.3	4766.3	4773.2	4797.7	4766.3
172.5°	4808.0	4787.3	4794.4	4818.8	4787.3
175°	4825.4	4801.0	4808.0	4832.4	4797.7
177.5°	4832.4	4808.0	4811.8	4836.2	4804.7
180°	4815.1	4815.1	4815.1	4815.1	4815.1

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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	9.46	10.20	10.53	11.26	12.71	5.42	6.16	6.49	7.22	8.67
	3H	11.14	11.79	12.21	12.87	14.33	6.60	7.26	7.68	8.33	9.80
	4H	11.74	12.36	12.83	13.44	14.91	7.05	7.67	8.14	8.75	10.22
	6H	12.16	12.74	13.26	13.81	15.30	7.37	7.94	8.46	9.02	10.50
	8H	12.29	12.83	13.39	13.93	15.40	7.45	8.00	8.55	9.09	10.57
	12H	12.35	12.87	13.45	13.95	15.45	7.50	8.01	8.60	9.10	10.60
4H	2H	9.47	10.09	10.56	11.16	12.63	6.01	6.63	7.10	7.70	9.18
	3H	11.29	11.81	12.39	12.91	14.40	7.35	7.87	8.45	8.97	10.45
	4H	11.98	12.46	13.09	13.55	15.06	7.89	8.37	9.00	9.46	10.97
	6H	12.50	12.91	13.61	14.02	15.52	8.31	8.72	9.42	9.83	11.33
	8H	12.67	13.05	13.79	14.16	15.67	8.44	8.82	9.55	9.92	11.44
	12H	12.77	13.11	13.90	14.23	15.75	8.50	8.84	9.63	9.96	11.48
8H	4H	11.94	12.32	13.06	13.43	14.94	8.17	8.55	9.28	9.66	11.17
	6H	12.51	12.83	13.65	13.97	15.48	8.69	9.00	9.82	10.15	11.66
	8H	12.73	13.01	13.87	14.14	15.66	8.88	9.15	10.02	10.28	11.81
	12H	12.87	13.11	14.01	14.24	15.80	8.99	9.23	10.14	10.36	11.93
12H	4H	11.89	12.24	13.02	13.36	14.87	8.17	8.52	9.30	9.63	11.15
	6H	12.49	12.76	13.63	13.89	15.42	8.74	9.01	9.88	10.14	11.67
	8H	12.71	12.95	13.85	14.07	15.64	8.94	9.19	10.09	10.31	11.88

END OF REPORT