

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: P923206

Luminaire Tested: DFN2DIP-SQ4F0-100D140US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923206
REPORT IS A COMBINATION OF REPORTS P900194 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US940-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

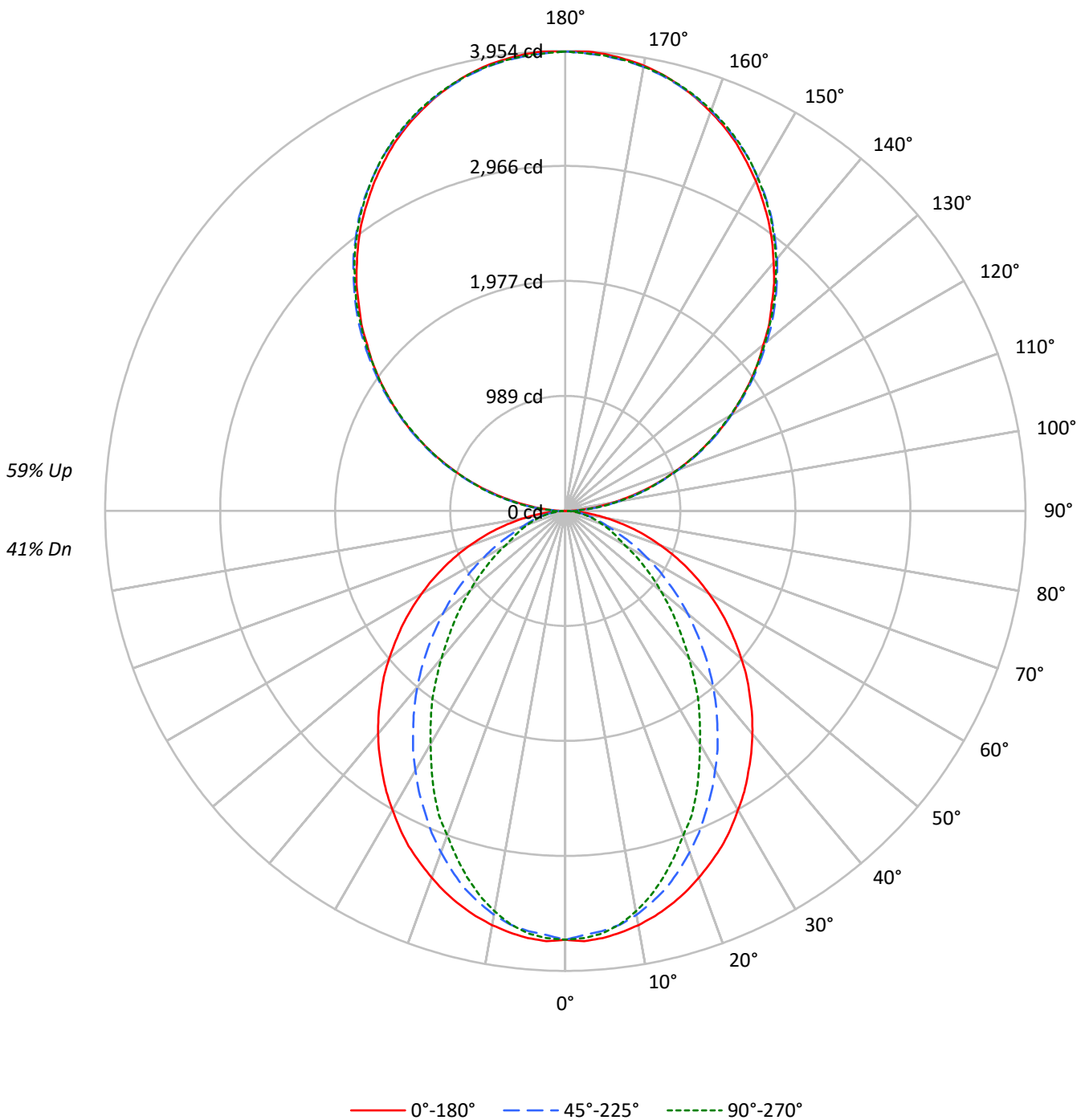
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18627.8 lumens
Efficiency: N/A
Efficacy: 93.8 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): 198.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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				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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	48	48	48	41
1	96	92	88	85	87	84	81	78	69	67	65	55	54	53	43	42	41	41	41	41	35
2	88	81	75	70	80	74	69	65	61	57	54	49	47	44	38	36	35	35	35	35	30
3	80	71	64	59	73	65	59	54	54	50	46	44	41	38	34	32	30	30	30	30	26
4	74	63	56	50	67	58	52	46	48	43	40	39	36	33	31	28	26	26	26	26	23
5	68	57	49	43	62	52	45	40	43	38	34	35	32	29	28	25	23	23	23	23	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	21	21	21	21	18
7	58	46	38	33	53	42	36	31	36	30	27	29	25	23	23	21	19	19	19	19	16
8	54	42	34	29	49	39	32	27	32	27	24	27	23	20	21	19	17	17	17	17	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	32	26	22	27	23	19	23	19	17	18	16	14	14	14	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2586	2586	2586
5°	2590	2545	2562
10°	2564	2496	2479
15°	2529	2414	2351
20°	2482	2301	2194
25°	2434	2174	2041
30°	2370	2043	1848
35°	2307	1903	1678
40°	2243	1758	1484
45°	2169	1597	1307
50°	2092	1435	1134
55°	2011	1261	969
60°	1918	1079	798
65°	1811	894	719
70°	1682	722	652
75°	1519	637	595
80°	1283	537	519
85°	893	361	394

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3108 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	1.9
10°-20°	948.2	5.1
20°-30°	1331.2	7.1
30°-40°	1451.1	7.8
40°-50°	1333.8	7.2
50°-60°	1047.4	5.6
60°-70°	681.8	3.7
70°-80°	351.0	1.9
80°-90°	100.8	0.5
90°-100°	244.3	1.3
100°-110°	776.3	4.2
110°-120°	1328.4	7.1
120°-130°	1747.1	9.4
130°-140°	1961.0	10.5
140°-150°	1923.0	10.3
150°-160°	1613.2	8.7
160°-170°	1069.8	5.7
170°-180°	373.9	2.0
0°-30°	2624.8	14.1
0°-40°	4076.0	21.9
0°-60°	6457.2	34.7
0°-90°	7590.7	40.7
90°-120°	2349.0	12.6
90°-150°	7980.2	42.8
90°-180°	11037.0	59.3
0°-180°	18627.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	4	43	117	110	113	18
95°	174	207	213	213	207	193
105°	717	726	733	739	739	756
115°	1333	1352	1346	1343	1333	1319
125°	1939	1969	1959	1948	1945	1733
135°	2508	2545	2552	2548	2539	1938
145°	3045	3069	3088	3091	3078	1902
155°	3482	3491	3502	3518	3508	1603
165°	3788	3784	3784	3808	3791	1068
175°	3941	3932	3924	3948	3928	374
180°	3948	3948	3948	3948	3948	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	3.6	42.9	116.6	109.5	113.1
92.5°	73.8	100.0	103.5	107.1	107.1
95°	173.8	207.1	213.0	213.0	207.1
97.5°	289.3	320.2	333.3	333.3	333.3
100°	422.6	450.0	459.4	459.4	455.8
102.5°	563.0	583.3	596.4	599.9	596.4
105°	716.6	726.1	733.3	739.1	739.1
107.5°	868.9	883.2	883.2	885.6	868.9
110°	1016.5	1035.5	1035.5	1035.5	1026.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.0	1196.2	1192.7	<i>1183.1</i>	1176.0
115°	1333.1	1352.2	1346.2	<i>1342.6</i>	1333.1
117.5°	1489.1	1515.3	1498.6	<i>1489.1</i>	1479.5
120°	1646.2	1672.4	1646.2	<i>1646.2</i>	1635.5
122.5°	1789.0	1822.3	1805.7	<i>1796.2</i>	1789.0
125°	1939.0	1968.7	1959.2	<i>1948.5</i>	1944.9
127.5°	2085.4	2122.3	2109.2	<i>2094.9</i>	2085.4
130°	2222.2	2265.1	2259.1	<i>2252.0</i>	2238.9
132.5°	2375.8	2409.1	2411.5	<i>2394.9</i>	2385.3
135°	2507.9	2544.9	2552.0	<i>2548.4</i>	2538.9
137.5°	2655.5	2685.3	2691.3	<i>2688.9</i>	2674.6
140°	2785.3	2815.0	2831.7	<i>2831.7</i>	2818.6
142.5°	2918.6	2948.4	2957.9	<i>2961.5</i>	2948.4
145°	3044.7	3068.6	3087.6	<i>3091.2</i>	3078.1
147.5°	3157.8	3187.6	3201.9	<i>3207.8</i>	3194.7
150°	3274.4	3294.7	3307.8	<i>3318.5</i>	3307.8
152.5°	3378.1	3398.3	3415.0	<i>3428.0</i>	3415.0
155°	3481.6	3491.1	3501.8	<i>3518.5</i>	3507.8
157.5°	3570.9	3578.0	3584.0	<i>3607.8</i>	3591.1
160°	3650.7	3657.8	3661.4	<i>3681.6</i>	3667.2
162.5°	3724.4	3724.4	3728.0	<i>3750.6</i>	3733.9
165°	3787.5	3784.0	3784.0	<i>3807.8</i>	3791.1
167.5°	3844.6	3833.9	3833.9	<i>3857.7</i>	3841.0
170°	3887.5	3878.0	3874.4	<i>3898.2</i>	3878.0
172.5°	3917.3	3907.7	3904.2	<i>3928.0</i>	3907.7
175°	3941.1	3931.6	3924.4	<i>3948.2</i>	3928.0
177.5°	<i>3954.1</i>	<i>3944.7</i>	<i>3937.5</i>	<i>3957.7</i>	<i>3937.5</i>
180°	3948.2	3948.2	3948.2	<i>3948.2</i>	3948.2



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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	9.53	10.29	10.57	11.33	12.73	5.49	6.25	6.53	7.29	8.69
	3H	11.21	11.89	12.25	12.93	14.35	6.67	7.35	7.72	8.40	9.82
	4H	11.81	12.46	12.87	13.51	14.94	7.12	7.76	8.18	8.82	10.24
	6H	12.24	12.83	13.31	13.88	15.32	7.44	8.03	8.51	9.09	10.52
	8H	12.36	12.93	13.44	14.00	15.43	7.53	8.09	8.60	9.16	10.60
	12H	12.42	12.96	13.50	14.02	15.48	7.57	8.10	8.65	9.17	10.63
4H	2H	9.54	10.18	10.61	11.23	12.66	6.08	6.72	7.15	7.77	9.20
	3H	11.37	11.90	12.44	12.98	14.42	7.42	7.96	8.50	9.04	10.48
	4H	12.06	12.55	13.14	13.62	15.08	7.97	8.46	9.05	9.53	10.99
	6H	12.57	12.99	13.66	14.09	15.54	8.39	8.81	9.47	9.90	11.35
	8H	12.75	13.14	13.84	14.23	15.70	8.51	8.91	9.60	9.99	11.46
	12H	12.85	13.20	13.95	14.30	15.77	8.58	8.93	9.68	10.03	11.50
8H	4H	12.02	12.41	13.11	13.50	14.97	8.25	8.64	9.34	9.72	11.19
	6H	12.59	12.91	13.70	14.04	15.51	8.76	9.09	9.87	10.22	11.68
	8H	12.81	13.09	13.93	14.20	15.69	8.96	9.24	10.07	10.35	11.84
	12H	12.95	13.20	14.07	14.30	15.83	9.07	9.32	10.19	10.43	11.95
12H	4H	11.97	12.33	13.08	13.42	14.90	8.25	8.60	9.35	9.70	11.18
	6H	12.57	12.85	13.68	13.96	15.45	8.81	9.10	9.93	10.21	11.69
	8H	12.79	13.04	13.91	14.14	15.67	9.02	9.27	10.14	10.38	11.90