

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: P904035

Luminaire Tested: DFN2DIP-SQ4F0-080D120US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904035
REPORT IS A COMBINATION OF REPORTS P901692 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D120US830-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

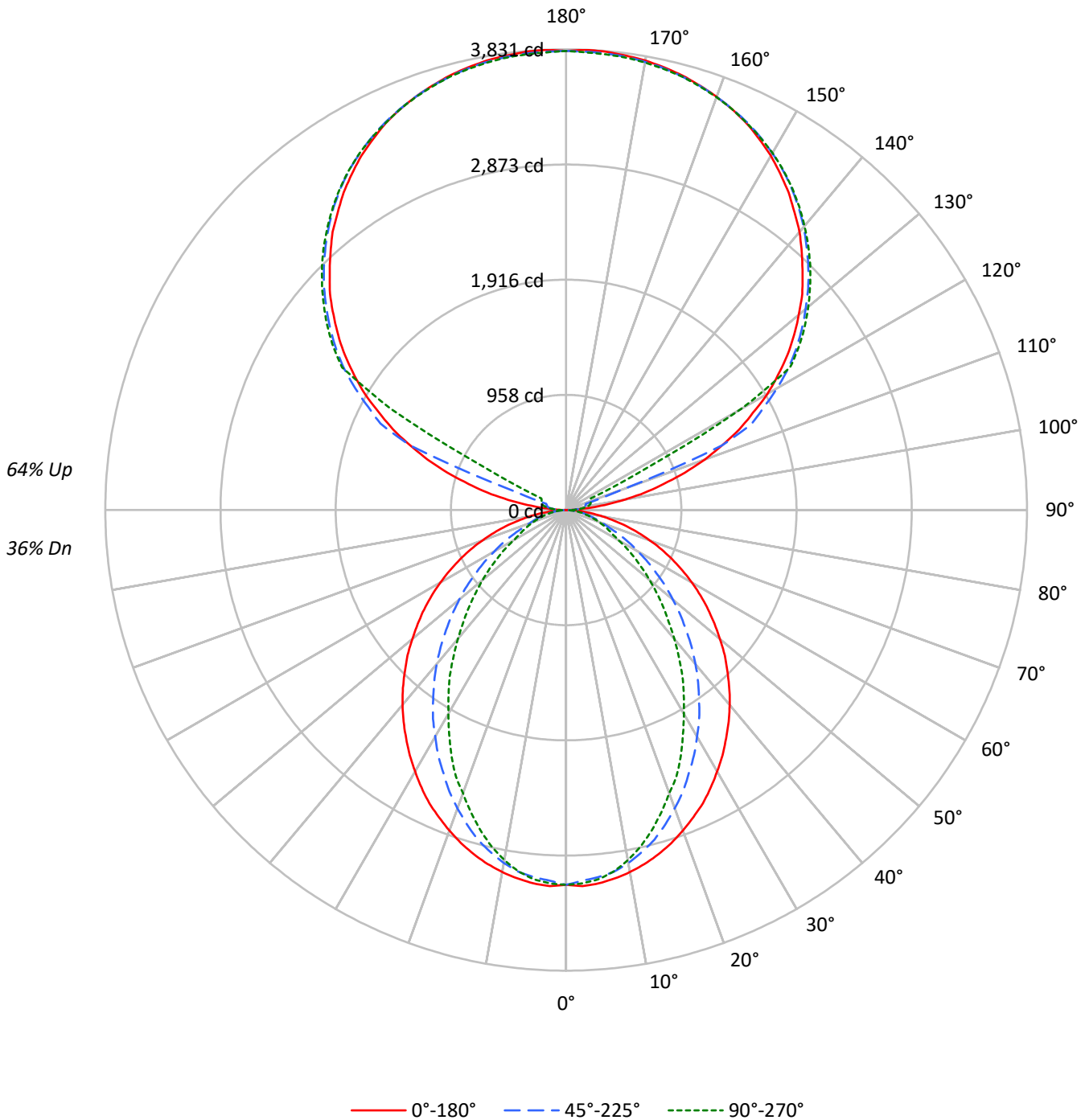
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17606.7 lumens
Efficiency: N/A
Efficacy: 109.0 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: Semi-Indirect

Input Watts (W): 161.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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			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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	36			36
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	31			31
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	27			27
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	23			23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	20			20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	18			18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	16			16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	14			14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	13			13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	12			12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	11			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2187	2187	2187
5°	2190	2152	2166
10°	2168	2111	2097
15°	2139	2041	1988
20°	2099	1946	1855
25°	2059	1838	1726
30°	2004	1728	1563
35°	1951	1609	1419
40°	1897	1487	1254
45°	1834	1351	1105
50°	1769	1213	959
55°	1701	1066	819
60°	1622	913	675
65°	1532	756	608
70°	1422	611	551
75°	1284	539	503
80°	1085	454	438
85°	755	305	333

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2047 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	1.7
10°-20°	801.8	4.6
20°-30°	1125.7	6.4
30°-40°	1227.1	7.0
40°-50°	1127.8	6.4
50°-60°	885.7	5.0
60°-70°	576.5	3.3
70°-80°	296.8	1.7
80°-90°	82.5	0.5
90°-100°	125.9	0.7
100°-110°	469.2	2.7
110°-120°	1244.4	7.1
120°-130°	2064.0	11.7
130°-140°	2192.4	12.5
140°-150°	2037.6	11.6
150°-160°	1638.2	9.3
160°-170°	1055.6	6.0
170°-180°	363.3	2.1
0°-30°	2219.6	12.6
0°-40°	3446.7	19.6
0°-60°	5460.2	31.0
0°-90°	6416.0	36.4
90°-120°	1839.5	10.4
90°-150°	8133.6	46.2
90°-180°	11191.0	63.6
0°-180°	17606.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3066	3091	3083	296
15°	2964	2933	2837	2784	2756	835
25°	2691	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	3	33	55	69	74	16
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2282	2334	2353	2362	2003
135°	2779	2823	2848	2876	2870	2146
145°	3224	3221	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3732	3751	3732	1057
175°	3825	3806	3812	3831	3803	364
180°	3817	3817	3817	3817	3817	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3116.4	3116.4	3116.4	3116.4	3116.4
2.5°	3130.5	3116.4	3085.3	3113.7	3108.0
5°	3116.4	3102.4	3065.5	3091.0	3082.6
7.5°	3091.0	3074.2	3034.7	3045.8	3031.7
10°	3057.1	3037.4	2981.2	2972.5	2955.7
12.5°	3015.0	2989.6	2913.2	2896.4	2865.3
15°	2964.1	2933.0	2837.2	2783.7	2755.5
17.5°	2904.8	2859.7	2741.2	2679.3	2634.0
20°	2837.2	2780.7	2639.8	2569.5	2507.2
22.5°	2763.9	2699.0	2535.3	2439.6	2397.4
25°	2690.6	2600.3	2414.1	2298.7	2256.2
27.5°	2603.2	2507.2	2301.3	2168.8	2103.8
30°	2510.2	2402.7	2177.2	2033.5	1957.2
32.5°	2419.8	2290.0	2059.0	1889.6	1819.0
35°	2318.4	2174.4	1926.4	1748.7	1686.4
37.5°	2219.6	2064.4	1802.2	1607.4	1537.1
40°	2115.3	1946.2	1672.4	1472.2	1398.8
42.5°	2008.1	1827.7	1542.8	1334.0	1263.6
45°	1895.3	1706.2	1410.2	1209.8	1142.2
47.5°	1788.2	1588.0	1283.4	1082.9	1021.0
50°	1669.6	1469.5	1159.2	964.4	905.4
52.5°	1553.9	1342.3	1040.7	854.6	801.1
55°	1441.1	1221.2	916.5	747.4	693.9
57.5°	1325.6	1099.9	806.7	648.8	603.5
60°	1207.0	981.5	690.9	547.2	502.1
62.5°	1091.6	865.9	592.2	456.9	434.5
65°	973.1	744.4	490.7	395.0	386.3
67.5°	860.3	631.7	395.0	346.8	338.5
70°	741.8	521.9	327.1	298.9	287.6
72.5°	629.0	420.1	273.5	251.1	245.3
75°	518.9	321.4	225.6	205.9	203.2
77.5°	409.1	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.3	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
90°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.7	168.6	198.8	209.9
107.5°	1035.8	1104.7	174.2	204.3	215.5
110°	1223.7	1281.5	483.4	207.3	218.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1450.0	1403.2	212.5	221.0
115°	1588.1	1635.0	1704.2	425.4	226.7
117.5°	1751.1	1806.3	1853.5	1458.2	734.7
120°	1933.5	1974.8	2024.7	2057.9	1684.9
122.5°	2088.0	2132.3	2187.7	2204.1	2207.1
125°	2245.4	2281.5	2334.0	2353.3	2361.5
127.5°	2389.1	2427.8	2469.5	2497.0	2499.6
130°	2524.5	2568.8	2599.0	2629.5	2626.9
132.5°	2662.6	2698.7	2728.8	2753.8	2751.2
135°	2778.7	2823.0	2847.6	2875.5	2869.9
137.5°	2900.1	2933.2	2961.1	2988.6	2980.4
140°	3018.9	3041.1	3071.3	3096.3	3082.5
142.5°	3118.5	3137.9	3173.6	3195.6	3181.8
145°	3223.5	3220.6	3267.4	3286.8	3273.0
147.5°	3314.4	3306.2	3353.1	3366.9	3356.0
150°	3402.9	3383.5	3427.8	3444.2	3430.5
152.5°	3477.3	3455.4	3496.7	3513.4	3494.1
155°	3549.1	3524.5	3557.7	3574.1	3552.2
157.5°	3607.2	3585.2	3610.2	3629.5	3607.2
160°	3657.1	3640.4	3657.1	3673.5	3654.1
162.5°	3701.1	3684.7	3698.4	3717.8	3692.9
165°	3739.7	3723.3	3731.5	3750.9	3731.5
167.5°	3770.3	3753.5	3762.1	3781.4	3756.5
170°	3795.1	3778.5	3784.0	3803.3	3778.5
172.5°	3811.5	3795.1	3800.8	3820.1	3795.1
175°	3825.3	3806.0	3811.5	3831.0	3803.3
177.5°	3831.0	3811.5	3814.6	3833.9	3809.0
180°	3817.2	3817.2	3817.2	3817.2	3817.2



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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	8.46	9.19	9.53	10.26	11.72	4.42	5.15	5.50	6.22	7.68
	3H	10.14	10.79	11.22	11.87	13.34	5.61	6.26	6.69	7.34	8.81
	4H	10.74	11.36	11.84	12.44	13.92	6.05	6.67	7.14	7.75	9.23
	6H	11.16	11.73	12.26	12.82	14.31	6.37	6.94	7.47	8.02	9.51
	8H	11.29	11.83	12.39	12.93	14.41	6.46	7.00	7.56	8.10	9.58
	12H	11.35	11.86	12.46	12.96	14.46	6.50	7.01	7.61	8.10	9.61
4H	2H	8.47	9.09	9.57	10.17	11.65	5.01	5.63	6.11	6.71	8.19
	3H	10.29	10.81	11.40	11.91	13.41	6.35	6.87	7.46	7.97	9.46
	4H	10.99	11.46	12.09	12.55	14.07	6.90	7.37	8.01	8.46	9.98
	6H	11.50	11.90	12.62	13.02	14.53	7.31	7.72	8.43	8.83	10.34
	8H	11.68	12.05	12.79	13.16	14.69	7.44	7.82	8.55	8.93	10.45
	12H	11.77	12.11	12.90	13.23	14.76	7.50	7.84	8.63	8.96	10.49
8H	4H	10.95	11.32	12.06	12.43	13.96	7.17	7.55	8.29	8.66	10.18
	6H	11.51	11.82	12.65	12.98	14.50	7.69	8.00	8.83	9.15	10.67
	8H	11.73	12.00	12.88	13.14	14.68	7.88	8.15	9.02	9.29	10.82
	12H	11.87	12.11	13.02	13.24	14.81	7.99	8.23	9.14	9.36	10.94
12H	4H	10.89	11.24	12.03	12.36	13.88	7.17	7.51	8.31	8.64	10.16
	6H	11.49	11.76	12.63	12.89	14.43	7.74	8.01	8.88	9.14	10.68
	8H	11.71	11.95	12.85	13.08	14.65	7.94	8.18	9.09	9.31	10.89