

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: P917820

Luminaire Tested: DFN2DIP-SQ4F0-120D140US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917820
REPORT IS A COMBINATION OF REPORTS P900197 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D140US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

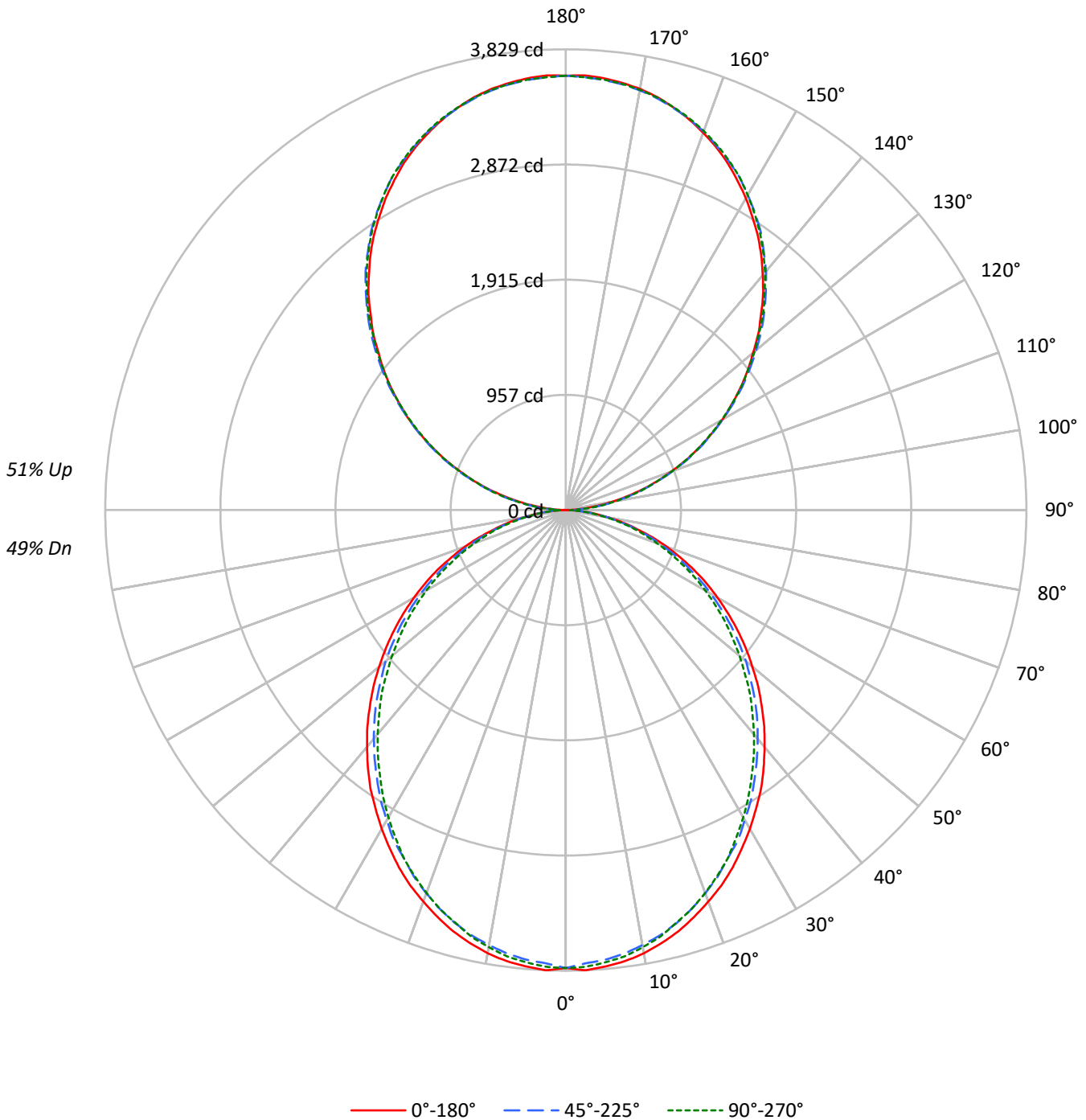
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19787.3 lumens
Efficiency: N/A
Efficacy: 88.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 223.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	50	30	10	0		
RCR																										
0	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49								
1	98	93	89	86	90	86	83	80	73	70	68	60	59	57	49	48	47	41								
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39	35								
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	33	29								
4	74	63	55	49	68	59	52	46	50	45	40	42	38	34	34	31	29	25								
5	68	56	48	42	62	52	45	40	45	39	35	37	33	30	31	28	25	22								
6	63	51	43	37	58	47	40	35	40	35	30	34	29	26	28	25	22	19								
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20	17								
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18	15								
9	50	38	30	25	46	35	29	24	30	25	21	26	22	19	22	18	16	14								
10	47	35	28	23	43	32	26	22	28	23	19	24	20	17	20	17	14	12								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2671	2671	2671
5°	2675	2634	2652
10°	2654	2600	2617
15°	2615	2557	2562
20°	2562	2498	2505
25°	2509	2428	2440
30°	2444	2362	2356
35°	2381	2285	2267
40°	2305	2206	2183
45°	2228	2128	2097
50°	2144	2046	1997
55°	2057	1950	1906
60°	1958	1837	1801
65°	1850	1721	1677
70°	1712	1578	1544
75°	1522	1407	1423
80°	1293	1191	1188
85°	934	814	799

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2842 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	358.3	1.8
10°-20°	1008.1	5.1
20°-30°	1481.5	7.5
30°-40°	1720.7	8.7
40°-50°	1718.6	8.7
50°-60°	1498.5	7.6
60°-70°	1107.8	5.6
70°-80°	626.7	3.2
80°-90°	175.7	0.9
90°-100°	223.4	1.1
100°-110°	709.8	3.6
110°-120°	1214.6	6.1
120°-130°	1597.4	8.1
130°-140°	1793.0	9.1
140°-150°	1758.2	8.9
150°-160°	1474.9	7.5
160°-170°	978.1	4.9
170°-180°	341.9	1.7
0°-30°	2848.0	14.4
0°-40°	4568.7	23.1
0°-60°	7785.8	39.3
0°-90°	9696.0	49.0
90°-120°	2147.7	10.9
90°-150°	7296.4	36.9
90°-180°	10091.0	51.0
0°-180°	19787.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3807	3807	3807	3807	3807	
5°	3807	3792	3752	3781	3774	361
15°	3624	3602	3554	3569	3551	1021
25°	3280	3251	3188	3196	3188	1509
35°	2830	2793	2734	2712	2694	1767
45°	2303	2277	2222	2182	2167	1777
55°	1743	1720	1677	1633	1614	1558
65°	1175	1153	1117	1084	1065	1162
75°	615	608	589	567	575	656
85°	150	146	143	132	128	167
90°	3	39	107	100	103	19
95°	159	189	195	195	189	177
105°	655	664	670	676	676	691
115°	1219	1236	1231	1228	1219	1206
125°	1773	1800	1791	1782	1778	1584
135°	2293	2327	2333	2330	2321	1772
145°	2784	2806	2823	2826	2814	1739
155°	3183	3192	3202	3217	3207	1465
165°	3463	3460	3460	3482	3466	977
175°	3603	3595	3588	3610	3591	342
180°	3610	3610	3610	3610	3610	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3806.9	3806.9	3806.9	3806.9	3806.9
2.5°	3829.0	3810.7	3770.3	3806.9	3799.9
5°	3806.9	3792.4	3752.1	3781.2	3774.2
7.5°	3781.2	3759.4	3719.1	3748.6	3741.2
10°	3741.2	3715.6	3671.7	3700.8	3690.0
12.5°	3686.0	3664.3	3620.4	3638.7	3631.3
15°	3623.9	3602.2	3554.4	3569.1	3550.9
17.5°	3547.0	3525.3	3477.5	3495.8	3477.5
20°	3462.7	3441.0	3389.8	3400.6	3386.3
22.5°	3378.8	3345.8	3298.0	3298.0	3290.7
25°	3279.8	3250.7	3188.5	3195.6	3188.5
27.5°	3169.9	3144.3	3096.9	3086.0	3067.8
30°	3060.4	3030.9	2976.1	2965.2	2950.5
32.5°	2943.1	2921.4	2862.7	2840.6	2825.8
35°	2829.7	2793.2	2734.5	2712.4	2694.2
37.5°	2701.5	2668.6	2609.9	2584.3	2566.0
40°	2569.9	2540.4	2481.7	2449.1	2434.3
42.5°	2441.7	2412.2	2353.9	2317.1	2295.3
45°	2302.6	2277.0	2221.9	2181.9	2167.1
47.5°	2167.1	2141.5	2082.8	2042.5	2020.7
50°	2024.2	2006.0	1954.7	1903.4	1885.1
52.5°	1885.1	1859.5	1812.2	1771.7	1746.1
55°	1742.6	1720.5	1676.6	1632.7	1614.5
57.5°	1599.7	1581.4	1533.7	1489.8	1475.0
60°	1456.8	1442.4	1391.1	1350.8	1339.9
62.5°	1317.8	1292.1	1255.6	1219.1	1204.4
65°	1175.3	1153.1	1116.6	1083.5	1065.4
67.5°	1028.8	1010.2	977.5	951.9	937.2
70°	893.2	878.5	845.5	819.9	805.5
72.5°	754.2	739.5	721.2	695.6	684.7
75°	614.8	607.8	589.1	567.4	574.8
77.5°	490.5	475.7	468.4	457.5	446.6
80°	366.2	362.3	355.0	344.1	336.7
82.5°	248.9	248.9	245.5	230.7	230.7
85°	149.9	146.4	142.9	131.7	128.2
87.5°	66.0	58.6	51.3	40.4	36.5
90°	3.3	39.2	106.6	100.1	103.4
92.5°	67.5	91.4	94.7	97.9	97.9
95°	158.9	189.4	194.8	194.8	189.4
97.5°	264.5	292.8	304.8	304.8	304.8
100°	386.4	411.4	420.0	420.0	416.8
102.5°	514.8	533.3	545.3	548.5	545.3
105°	655.2	663.9	670.4	675.8	675.8
107.5°	794.4	807.6	807.6	809.7	794.4
110°	929.4	946.8	946.8	946.8	938.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1075.2	1093.7	1090.5	1081.7	1075.2
115°	1218.9	1236.3	1230.9	1227.6	1218.9
117.5°	1361.5	1385.4	1370.2	1361.5	1352.7
120°	1505.1	1529.1	1505.1	1505.1	1495.3
122.5°	1635.7	1666.1	1651.0	1642.3	1635.7
125°	1772.9	1800.0	1791.3	1781.5	1778.2
127.5°	1906.7	1940.4	1928.4	1915.4	1906.7
130°	2031.8	2071.0	2065.6	2059.0	2047.1
132.5°	2172.2	2202.7	2204.9	2189.6	2180.9
135°	2293.0	2326.8	2333.3	2330.0	2321.3
137.5°	2428.0	2455.2	2460.7	2458.5	2445.4
140°	2546.6	2573.8	2589.1	2589.1	2577.1
142.5°	2668.5	2695.7	2704.4	2707.7	2695.7
145°	2783.8	2805.6	2823.1	2826.3	2814.3
147.5°	2887.2	2914.4	2927.5	2933.0	2921.0
150°	2993.9	3012.4	3024.3	3034.1	3024.3
152.5°	3088.6	3107.1	3122.3	3134.3	3122.3
155°	3183.3	3192.0	3201.8	3217.0	3207.2
157.5°	3264.9	3271.4	3276.8	3298.6	3283.4
160°	3337.8	3344.4	3347.6	3366.1	3353.0
162.5°	3405.3	3405.3	3408.5	3429.2	3414.0
165°	3463.0	3459.7	3459.7	3481.5	3466.2
167.5°	3515.2	3505.4	3505.4	3527.1	3511.9
170°	3554.4	3545.7	3542.4	3564.2	3545.7
172.5°	3581.6	3572.9	3569.6	3591.4	3572.9
175°	3603.4	3594.6	3588.1	3609.9	3591.4
177.5°	3615.3	3606.6	3600.1	3618.5	3600.1
180°	3609.9	3609.9	3609.9	3609.9	3609.9



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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	10.60	11.46	11.57	12.44	13.72	10.16	11.01	11.12	11.99	13.28
	3H	12.27	13.03	13.24	14.02	15.33	11.78	12.54	12.75	13.53	14.84
	4H	12.86	13.58	13.85	14.57	15.89	12.36	13.09	13.35	14.08	15.40
	6H	13.26	13.93	14.26	14.93	16.25	12.76	13.43	13.76	14.42	15.75
	8H	13.37	14.00	14.37	15.02	16.34	12.86	13.50	13.87	14.51	15.84
	12H	13.42	14.02	14.43	15.03	16.38	12.91	13.51	13.92	14.52	15.87
4H	2H	11.06	11.79	12.06	12.78	14.10	10.71	11.43	11.71	12.43	13.74
	3H	12.93	13.54	13.94	14.56	15.89	12.53	13.13	13.53	14.15	15.48
	4H	13.65	14.20	14.66	15.22	16.57	13.23	13.78	14.24	14.79	16.15
	6H	14.17	14.65	15.19	15.68	17.03	13.74	14.21	14.76	15.25	16.60
	8H	14.32	14.77	15.35	15.80	17.16	13.88	14.33	14.91	15.36	16.72
	12H	14.40	14.80	15.44	15.84	17.21	13.95	14.35	14.99	15.39	16.76
8H	4H	13.85	14.29	14.87	15.32	16.69	13.47	13.92	14.50	14.95	16.31
	6H	14.48	14.85	15.53	15.92	17.29	14.10	14.47	15.15	15.54	16.90
	8H	14.71	15.03	15.76	16.09	17.47	14.31	14.64	15.37	15.70	17.08
	12H	14.84	15.13	15.90	16.18	17.60	14.43	14.71	15.49	15.77	17.19
12H	4H	13.83	14.23	14.88	15.28	16.65	13.46	13.87	14.51	14.91	16.28
	6H	14.51	14.84	15.57	15.89	17.28	14.14	14.47	15.20	15.52	16.90
	8H	14.76	15.04	15.82	16.09	17.52	14.38	14.66	15.44	15.72	17.14