

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: P917752

Luminaire Tested: DFN2DIP-SQ4F0-100D160US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917752
REPORT IS A COMBINATION OF REPORTS P900211 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D160US930-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

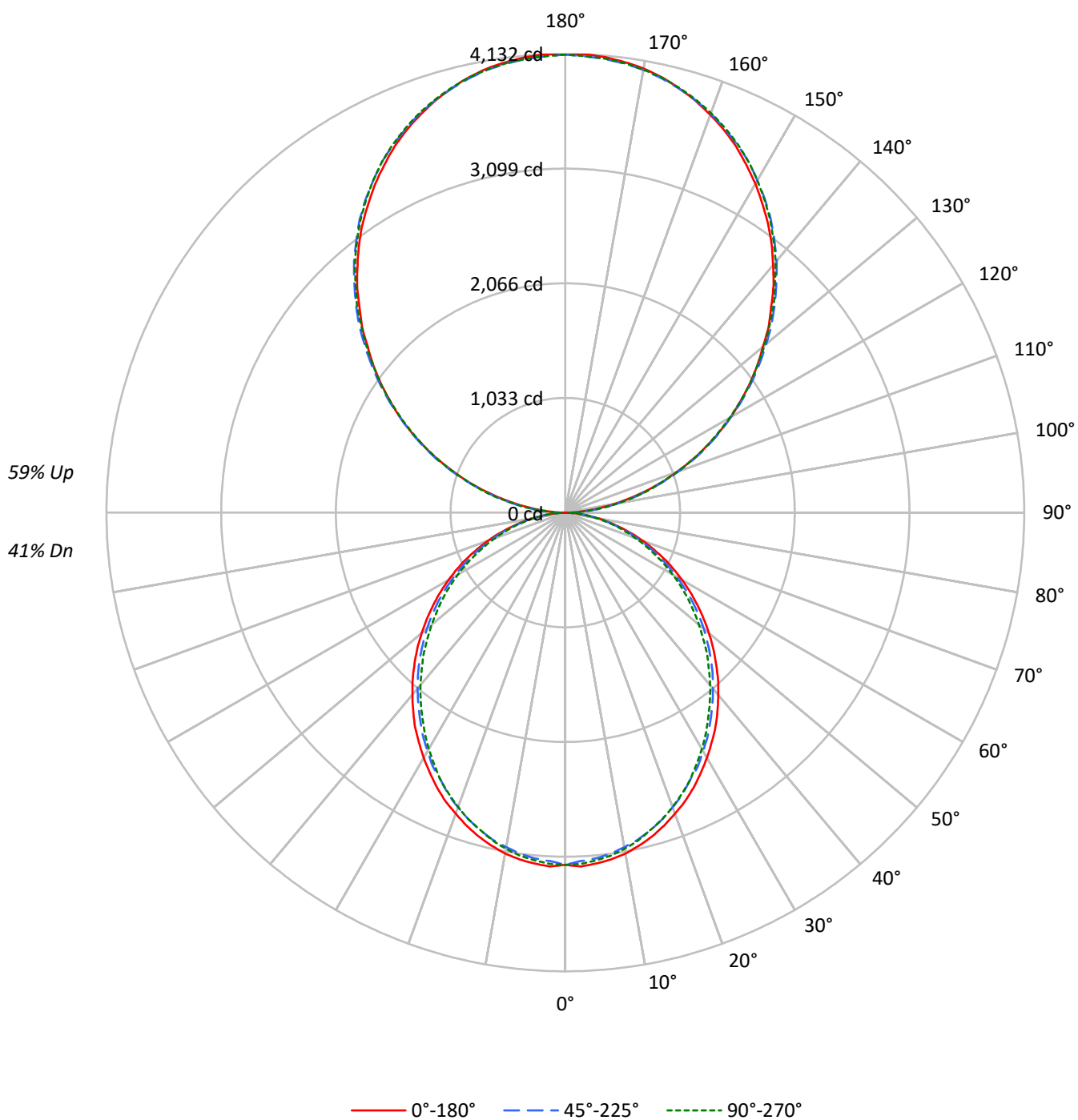
Lumens per Lamp: N/A
Luminaire Lumens: 19616.9 lumens
Efficiency: N/A
Efficacy: 91.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 214.8
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
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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	84	87	84	80	77	69	66	64	55	53	52	42	41	41
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34
3	80	70	63	57	72	64	58	53	53	48	45	43	39	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2226	2226	2226
5°	2230	2195	2210
10°	2211	2166	2181
15°	2179	2131	2135
20°	2135	2082	2088
25°	2091	2023	2033
30°	2036	1968	1963
35°	1984	1904	1889
40°	1920	1839	1819
45°	1857	1773	1748
50°	1787	1705	1664
55°	1714	1625	1588
60°	1632	1531	1501
65°	1542	1434	1398
70°	1427	1315	1287
75°	1268	1173	1186
80°	1077	992	990
85°	778	679	666

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3246 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	298.6	1.5
10°-20°	840.1	4.3
20°-30°	1234.6	6.3
30°-40°	1433.9	7.3
40°-50°	1432.1	7.3
50°-60°	1248.8	6.4
60°-70°	923.1	4.7
70°-80°	522.3	2.7
80°-90°	149.6	0.8
90°-100°	255.3	1.3
100°-110°	811.2	4.1
110°-120°	1388.2	7.1
120°-130°	1825.7	9.3
130°-140°	2049.3	10.4
140°-150°	2009.6	10.2
150°-160°	1685.7	8.6
160°-170°	1117.9	5.7
170°-180°	390.8	2.0
0°-30°	2373.3	12.1
0°-40°	3807.2	19.4
0°-60°	6488.2	33.1
0°-90°	8083.2	41.2
90°-120°	2454.7	12.5
90°-150°	8339.3	42.5
90°-180°	11534.0	58.8
0°-180°	19616.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3172	3172	3172	3172	3172	
5°	3172	3160	3127	3151	3145	301
15°	3020	3002	2962	2974	2959	851
25°	2733	2709	2657	2663	2657	1258
35°	2358	2328	2279	2260	2245	1473
45°	1919	1898	1852	1818	1806	1481
55°	1452	1434	1397	1361	1345	1298
65°	979	961	930	903	888	968
75°	512	506	491	473	479	547
85°	125	122	119	110	107	139
90°	4	45	122	114	118	19
95°	182	216	223	223	216	202
105°	749	759	766	772	772	790
115°	1393	1413	1407	1403	1393	1378
125°	2026	2057	2047	2036	2032	1811
135°	2621	2659	2667	2663	2653	2026
145°	3182	3207	3226	3230	3217	1988
155°	3638	3648	3659	3677	3666	1675
165°	3958	3954	3954	3979	3962	1117
175°	4118	4108	4101	4126	4105	391
180°	4126	4126	4126	4126	4126	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3172.4	3172.4	3172.4	3172.4	3172.4
2.5°	3190.8	3175.6	3141.9	3172.4	3166.5
5°	3172.4	3160.4	3126.8	3151.0	3145.2
7.5°	3151.0	3132.9	3099.2	3123.8	3117.7
10°	3117.7	3096.3	3059.7	3084.0	3075.0
12.5°	3071.7	3053.6	3017.0	3032.3	3026.1
15°	3019.9	3001.8	2962.0	2974.3	2959.1
17.5°	2955.9	2937.8	2897.9	2913.1	2897.9
20°	2885.6	2867.5	2824.8	2833.8	2821.8
22.5°	2815.7	2788.2	2748.4	2748.4	2742.3
25°	2733.2	2708.9	2657.1	2662.9	2657.1
27.5°	2641.6	2620.2	2580.7	2571.7	2556.4
30°	2550.3	2525.7	2480.1	2471.0	2458.7
32.5°	2452.6	2434.5	2385.6	2367.1	2354.8
35°	2358.1	2327.7	2278.8	2260.3	2245.1
37.5°	2251.3	2223.7	2174.9	2153.5	2138.3
40°	2141.5	2116.9	2068.1	2040.9	2028.6
42.5°	2034.7	2010.1	1961.6	1930.9	1912.8
45°	1918.9	1897.5	1851.5	1818.2	1806.0
47.5°	1806.0	1784.6	1735.7	1702.0	1683.9
50°	1686.9	1671.6	1628.9	1586.2	1571.0
52.5°	1571.0	1549.6	1510.1	1476.5	1455.1
55°	1452.2	1433.8	1397.2	1360.6	1345.4
57.5°	1333.1	1317.8	1278.1	1241.5	1229.2
60°	1214.0	1202.0	1159.3	1125.6	1116.6
62.5°	1098.1	1076.8	1046.4	1015.9	1003.6
65°	979.3	960.9	930.5	902.9	887.8
67.5°	857.4	841.8	814.6	793.3	781.0
70°	744.4	732.1	704.6	683.2	671.2
72.5°	628.5	616.2	601.0	579.7	570.5
75°	512.3	506.5	491.0	472.9	479.0
77.5°	408.8	396.5	390.3	381.2	372.2
80°	305.2	302.0	295.8	286.7	280.6
82.5°	207.5	207.5	204.6	192.2	192.2
85°	124.9	122.1	119.1	109.7	106.8
87.5°	55.0	48.8	42.7	33.7	30.4
90°	3.8	44.8	121.9	114.5	118.1
92.5°	77.1	104.5	108.2	111.9	111.9
95°	181.6	216.5	222.7	222.7	216.5
97.5°	302.2	334.6	348.3	348.3	348.3
100°	441.6	470.2	480.1	480.1	476.4
102.5°	588.3	609.5	623.1	626.9	623.1
105°	748.8	758.7	766.2	772.4	772.4
107.5°	908.0	922.9	922.9	925.4	908.0
110°	1062.3	1082.1	1082.1	1082.1	1072.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1228.9	1250.1	1246.3	1236.4	1228.9
115°	1393.1	1413.0	1406.8	1403.0	1393.1
117.5°	1556.1	1583.4	1566.0	1556.1	1546.1
120°	1720.3	1747.6	1720.3	1720.3	1709.0
122.5°	1869.5	1904.4	1886.9	1877.0	1869.5
125°	2026.3	2057.3	2047.4	2036.2	2032.5
127.5°	2179.2	2217.8	2204.1	2189.2	2179.2
130°	2322.3	2367.1	2360.9	2353.4	2339.7
132.5°	2482.7	2517.6	2520.0	2502.6	2492.7
135°	2620.8	2659.3	2666.8	2663.1	2653.1
137.5°	2775.0	2806.1	2812.4	2809.8	2794.9
140°	2910.6	2941.7	2959.1	2959.1	2945.4
142.5°	3049.9	3081.0	3091.0	3094.7	3081.0
145°	3181.8	3206.6	3226.5	3230.3	3216.6
147.5°	3299.9	3331.1	3346.0	3352.2	3338.5
150°	3421.8	3443.0	3456.7	3467.9	3456.7
152.5°	3530.1	3551.2	3568.6	3582.3	3568.6
155°	3638.3	3648.2	3659.4	3676.8	3665.7
157.5°	3731.5	3739.0	3745.2	3770.1	3752.7
160°	3814.9	3822.4	3826.1	3847.2	3832.3
162.5°	3892.0	3892.0	3895.7	3919.4	3901.9
165°	3957.9	3954.2	3954.2	3979.1	3961.7
167.5°	4017.6	4006.5	4006.5	4031.3	4013.9
170°	4062.4	4052.4	4048.8	4073.6	4052.4
172.5°	4093.5	4083.6	4079.8	4104.7	4083.6
175°	4118.4	4108.5	4101.0	4125.9	4104.7
177.5°	4132.1	4122.1	4114.6	4135.8	4114.6
180°	4125.9	4125.9	4125.9	4125.9	4125.9

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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	9.19	9.98	10.22	11.01	12.41	8.75	9.53	9.78	10.57	11.96
	3H	10.85	11.56	11.89	12.60	14.01	10.36	11.07	11.40	12.11	13.52
	4H	11.44	12.11	12.49	13.15	14.57	10.94	11.61	11.99	12.66	14.08
	6H	11.84	12.45	12.90	13.50	14.93	11.34	11.95	12.40	13.00	14.43
	8H	11.94	12.53	13.01	13.60	15.02	11.44	12.03	12.50	13.09	14.52
	12H	11.99	12.55	13.06	13.61	15.06	11.48	12.04	12.55	13.10	14.55
4H	2H	9.64	10.31	10.70	11.36	12.78	9.29	9.96	10.35	11.01	12.42
	3H	11.51	12.07	12.57	13.14	14.57	11.10	11.66	12.17	12.73	14.16
	4H	12.22	12.73	13.29	13.80	15.25	11.80	12.31	12.87	13.38	14.83
	6H	12.74	13.18	13.82	14.27	15.71	12.30	12.74	13.39	13.83	15.28
	8H	12.89	13.30	13.97	14.38	15.84	12.45	12.86	13.53	13.94	15.41
	12H	12.96	13.33	14.06	14.43	15.89	12.51	12.88	13.61	13.98	15.44
8H	4H	12.41	12.82	13.49	13.91	15.37	12.04	12.45	13.12	13.53	14.99
	6H	13.05	13.39	14.15	14.51	15.97	12.66	13.00	13.77	14.13	15.59
	8H	13.27	13.57	14.38	14.67	16.15	12.88	13.17	13.99	14.28	15.76
	12H	13.40	13.66	14.51	14.76	16.28	12.99	13.25	14.10	14.35	15.87
12H	4H	12.39	12.77	13.49	13.86	15.33	12.03	12.40	13.13	13.49	14.96
	6H	13.08	13.37	14.19	14.48	15.96	12.70	13.00	13.81	14.11	15.59
	8H	13.32	13.58	14.43	14.68	16.20	12.94	13.20	14.05	14.30	15.82

END OF REPORT