

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: P904108

Luminaire Tested: DFN2DIP-SQ4F0-100D140US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904108
REPORT IS A COMBINATION OF REPORTS P900193 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US830-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

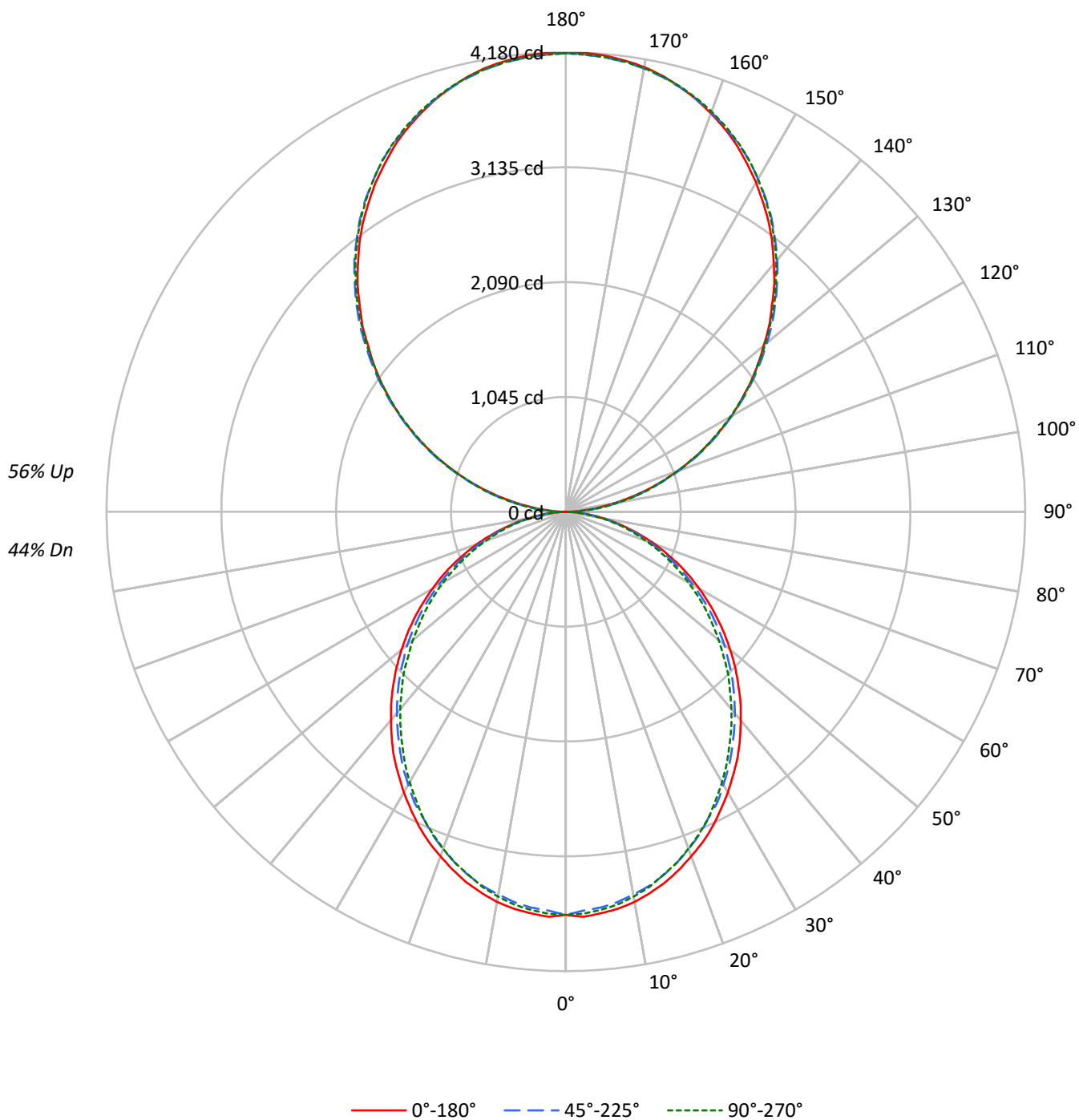
Lumens per Lamp: N/A
Luminaire Lumens: 21009.3 lumens
Efficiency: N/A
Efficacy: 105.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2573	2573	2573
5°	2577	2538	2555
10°	2557	2504	2522
15°	2519	2464	2468
20°	2468	2407	2413
25°	2418	2339	2350
30°	2354	2276	2270
35°	2294	2201	2184
40°	2220	2126	2103
45°	2147	2050	2020
50°	2066	1971	1924
55°	1982	1879	1836
60°	1886	1770	1735
65°	1782	1658	1616
70°	1650	1520	1488
75°	1466	1356	1371
80°	1245	1147	1145
85°	900	785	770

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3284 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	1.6
10°-20°	971.2	4.6
20°-30°	1427.3	6.8
30°-40°	1657.7	7.9
40°-50°	1655.7	7.9
50°-60°	1443.7	6.9
60°-70°	1067.2	5.1
70°-80°	603.8	2.9
80°-90°	171.2	0.8
90°-100°	258.2	1.2
100°-110°	820.5	3.9
110°-120°	1404.2	6.7
120°-130°	1846.7	8.8
130°-140°	2072.8	9.9
140°-150°	2032.6	9.7
150°-160°	1705.1	8.1
160°-170°	1130.8	5.4
170°-180°	395.2	1.9
0°-30°	2743.7	13.1
0°-40°	4401.4	20.9
0°-60°	7500.8	35.7
0°-90°	9343.0	44.5
90°-120°	2483.0	11.8
90°-150°	8435.1	40.1
90°-180°	11666.0	55.5
0°-180°	21009.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3668	3668	3668	3668	3668	
5°	3668	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2596	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	4	45	123	116	120	20
95°	184	219	225	225	219	204
105°	757	768	775	781	781	799
115°	1409	1429	1423	1419	1409	1394
125°	2050	2081	2071	2060	2056	1831
135°	2651	2690	2698	2694	2684	2049
145°	3218	3244	3264	3267	3254	2011
155°	3680	3690	3702	3719	3708	1694
165°	4003	4000	4000	4025	4007	1129
175°	4166	4156	4148	4173	4152	396
180°	4173	4173	4173	4173	4173	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.5	3667.5	3667.5	3667.5	3667.5
2.5°	3688.8	3671.2	3632.3	3667.5	3660.7
5°	3667.5	3653.7	3614.7	3642.8	3636.0
7.5°	3642.8	3621.8	3582.9	3611.4	3604.3
10°	3604.3	3579.6	3537.3	3565.4	3554.9
12.5°	3551.1	3530.2	3487.9	3505.5	3498.3
15°	3491.3	3470.3	3424.3	3438.5	3421.0
17.5°	3417.2	3396.3	3350.2	3367.8	3350.2
20°	3335.9	3315.0	3265.6	3276.1	3262.2
22.5°	3255.2	3223.4	3177.3	3177.3	3170.2
25°	3159.8	3131.7	3071.8	3078.5	3071.8
27.5°	3053.8	3029.1	2983.5	2973.1	2955.4
30°	2948.4	2919.9	2867.1	2856.7	2842.4
32.5°	2835.4	2814.4	2757.9	2736.6	2722.3
35°	2726.1	2691.0	2634.4	2613.1	2595.5
37.5°	2602.6	2570.8	2514.3	2489.6	2472.0
40°	2475.8	2447.3	2390.9	2359.5	2345.2
42.5°	2352.3	2323.8	2267.8	2232.2	2211.3
45°	2218.4	2193.7	2140.5	2102.0	2087.8
47.5°	2087.8	2063.1	2006.6	1967.7	1946.7
50°	1950.1	1932.5	1883.1	1833.7	1816.2
52.5°	1816.2	1791.5	1745.8	1706.9	1682.2
55°	1678.9	1657.6	1615.2	1572.9	1555.4
57.5°	1541.2	1523.5	1477.5	1435.3	1421.1
60°	1403.4	1389.6	1340.2	1301.3	1290.8
62.5°	1269.5	1244.8	1209.7	1174.5	1160.3
65°	1132.2	1110.9	1075.7	1043.9	1026.3
67.5°	991.2	973.2	941.8	917.1	902.9
70°	860.5	846.3	814.5	789.9	776.0
72.5°	726.6	712.4	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.7	553.7
77.5°	472.6	458.4	451.2	440.7	430.3
80°	352.8	349.1	342.0	331.5	324.4
82.5°	239.9	239.9	236.5	222.3	222.3
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	3.8	45.3	123.3	115.7	119.5
92.5°	78.0	105.7	109.4	113.2	113.2
95°	183.7	219.0	225.2	225.2	219.0
97.5°	305.8	338.5	352.3	352.3	352.3
100°	446.7	475.6	485.6	485.6	481.8
102.5°	595.1	616.5	630.4	634.1	630.4
105°	757.4	767.5	775.1	781.3	781.3
107.5°	918.4	933.6	933.6	936.0	918.4
110°	1074.5	1094.6	1094.6	1094.6	1084.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1243.0	1264.4	1260.7	1250.6	1243.0
115°	1409.1	1429.3	1423.0	1419.2	1409.1
117.5°	1574.0	1601.7	1584.0	1574.0	1563.9
120°	1740.0	1767.7	1740.0	1740.0	1728.7
122.5°	1891.0	1926.2	1908.6	1898.6	1891.0
125°	2049.6	2080.9	2070.9	2059.5	2055.8
127.5°	2204.2	2243.3	2229.4	2214.3	2204.2
130°	2348.9	2394.2	2387.9	2380.4	2366.5
132.5°	2511.2	2546.5	2549.0	2531.4	2521.3
135°	2650.9	2689.9	2697.5	2693.7	2683.6
137.5°	2806.9	2838.4	2844.7	2842.1	2827.1
140°	2944.0	2975.5	2993.1	2993.1	2979.3
142.5°	3084.9	3116.4	3126.5	3130.3	3116.4
145°	3218.3	3243.5	3263.6	3267.4	3253.6
147.5°	3337.8	3369.3	3384.4	3390.7	3376.8
150°	3461.1	3482.5	3496.4	3507.7	3496.4
152.5°	3570.6	3592.0	3609.7	3623.4	3609.7
155°	3680.1	3690.1	3701.5	3719.1	3707.8
157.5°	3774.4	3782.0	3788.3	3813.4	3795.8
160°	3858.8	3866.3	3870.1	3891.5	3876.3
162.5°	3936.7	3936.7	3940.5	3964.4	3946.8
165°	4003.4	3999.7	3999.7	4024.8	4007.2
167.5°	4063.8	4052.5	4052.5	4077.6	4060.0
170°	4109.1	4099.0	4095.3	4120.4	4099.0
172.5°	4140.6	4130.5	4126.7	4151.9	4130.5
175°	4165.8	4155.7	4148.1	4173.3	4151.9
177.5°	4179.5	4169.5	4162.0	4183.3	4162.0
180°	4173.3	4173.3	4173.3	4173.3	4173.3

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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	10.03	10.85	11.04	11.86	13.21	9.59	10.40	10.59	11.42	12.76
	3H	11.69	12.42	12.71	13.45	14.81	11.20	11.93	12.22	12.96	14.32
	4H	12.28	12.97	13.31	14.00	15.38	11.79	12.48	12.81	13.51	14.88
	6H	12.68	13.32	13.72	14.35	15.74	12.18	12.82	13.22	13.85	15.24
	8H	12.79	13.39	13.83	14.44	15.83	12.29	12.89	13.33	13.94	15.32
	12H	12.84	13.41	13.88	14.45	15.86	12.33	12.90	13.37	13.94	15.35
4H	2H	10.49	11.18	11.52	12.21	13.58	10.13	10.83	11.17	11.85	13.23
	3H	12.35	12.93	13.40	13.99	15.37	11.95	12.52	12.99	13.58	14.97
	4H	13.07	13.60	14.12	14.64	16.06	12.65	13.18	13.69	14.22	15.63
	6H	13.59	14.04	14.64	15.11	16.52	13.16	13.61	14.21	14.68	16.09
	8H	13.74	14.16	14.80	15.22	16.65	13.30	13.73	14.36	14.79	16.21
	12H	13.81	14.20	14.89	15.27	16.70	13.36	13.75	14.44	14.82	16.25
8H	4H	13.26	13.69	14.32	14.75	16.17	12.89	13.31	13.95	14.37	15.80
	6H	13.90	14.25	14.98	15.35	16.77	13.51	13.87	14.60	14.97	16.39
	8H	14.12	14.43	15.21	15.52	16.96	13.73	14.04	14.82	15.12	16.56
	12H	14.25	14.52	15.35	15.61	17.09	13.84	14.11	14.94	15.20	16.67
12H	4H	13.25	13.63	14.32	14.71	16.13	12.88	13.26	13.96	14.34	15.77
	6H	13.93	14.24	15.02	15.32	16.76	13.56	13.86	14.64	14.95	16.39
	8H	14.17	14.44	15.26	15.52	17.00	13.79	14.06	14.88	15.14	16.62