

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: P904066

Luminaire Tested: DFN2DIP-SQ4F0-090D110US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904066
REPORT IS A COMBINATION OF REPORTS P900156 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D110US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

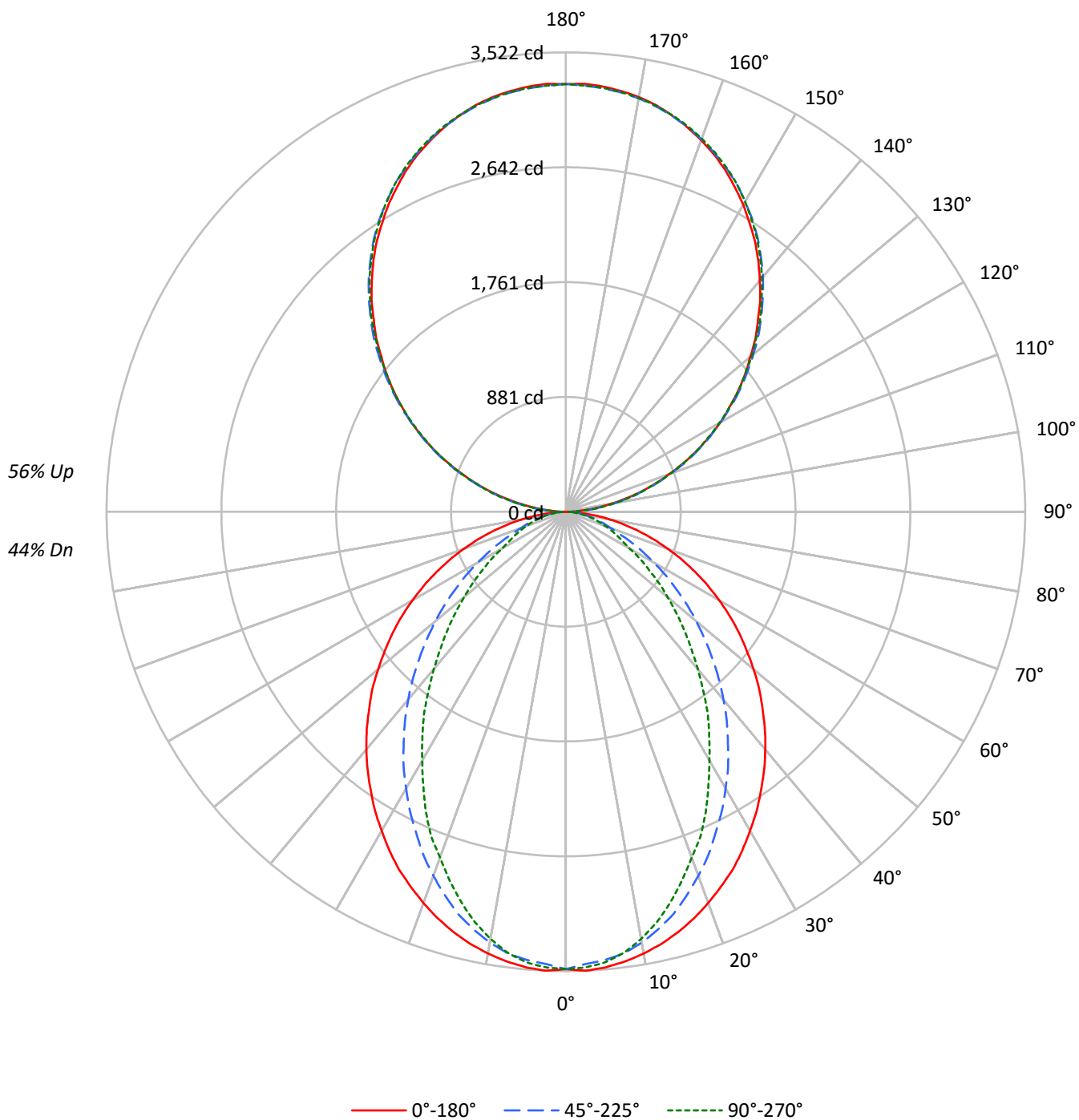
Lumens per Lamp: N/A
Luminaire Lumens: 16386.1 lumens
Efficiency: N/A
Efficacy: 99.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 165.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	93	89	86	89	85	82	79		71	69	67		58	56	55		45	44	44
2	89	81	76	71	81	75	70	66		62	59	56		51	49	46		40	39	37
3	81	72	65	59	74	66	60	55		55	51	47		45	42	40		36	34	32
4	74	64	56	51	68	59	52	47		50	45	41		41	37	34		33	30	28
5	68	57	49	44	62	53	46	41		45	39	35		37	33	30		30	27	25
6	63	51	44	38	58	48	41	36		40	35	31		33	29	26		27	24	22
7	58	46	39	33	53	43	36	31		37	31	27		30	27	24		25	22	20
8	54	42	35	30	50	39	33	28		33	28	24		28	24	21		23	20	18
9	51	39	31	26	46	36	29	25		31	26	22		26	22	19		21	18	16
10	47	35	28	24	43	33	27	22		28	23	20		24	20	17		20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2460	2460	2460
5°	2464	2422	2437
10°	2440	2374	2359
15°	2406	2296	2237
20°	2361	2189	2087
25°	2316	2068	1942
30°	2255	1944	1758
35°	2195	1811	1597
40°	2134	1673	1411
45°	2063	1519	1243
50°	1990	1365	1079
55°	1913	1199	921
60°	1825	1027	759
65°	1723	851	684
70°	1600	687	620
75°	1445	606	566
80°	1220	510	493
85°	849	343	375

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2581 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	2.0
10°-20°	902.0	5.5
20°-30°	1266.4	7.7
30°-40°	1380.5	8.4
40°-50°	1268.8	7.7
50°-60°	996.5	6.1
60°-70°	648.6	4.0
70°-80°	333.9	2.0
80°-90°	94.6	0.6
90°-100°	202.9	1.2
100°-110°	644.7	3.9
110°-120°	1103.3	6.7
120°-130°	1451.0	8.9
130°-140°	1628.6	9.9
140°-150°	1597.1	9.7
150°-160°	1339.7	8.2
160°-170°	888.5	5.4
170°-180°	310.5	1.9
0°-30°	2497.0	15.2
0°-40°	3877.5	23.7
0°-60°	6142.8	37.5
0°-90°	7219.8	44.1
90°-120°	1950.9	11.9
90°-150°	6627.6	40.4
90°-180°	9166.0	55.9
0°-180°	16386.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3335	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1920	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	3	36	97	91	94	16
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2114	2119	2116	2109	1610
145°	2529	2548	2564	2567	2556	1580
155°	2892	2899	2908	2922	2913	1331
165°	3146	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3506.0	3506.0	3506.0	3506.0	3506.0
2.5°	3521.8	3506.0	3470.9	3503.0	3496.5
5°	3506.0	3490.1	3448.8	3477.3	3467.9
7.5°	3477.3	3458.5	3414.1	3426.5	3410.7
10°	3439.3	3417.1	3353.8	3344.0	3325.2
12.5°	3391.8	3363.3	3277.4	3258.6	3223.5
15°	3334.6	3299.7	3191.9	3131.6	3100.0
17.5°	3268.0	3217.2	3083.8	3014.2	2963.4
20°	3191.9	3128.3	2969.7	2890.6	2820.6
22.5°	3109.4	3036.4	2852.2	2744.5	2697.1
25°	3027.0	2925.3	2715.9	2586.0	2538.2
27.5°	2928.7	2820.6	2589.0	2439.9	2366.8
30°	2824.0	2703.1	2449.3	2287.7	2201.9
32.5°	2722.3	2576.2	2316.3	2125.8	2046.4
35°	2608.2	2446.3	2167.2	1967.3	1897.2
37.5°	2497.1	2322.4	2027.5	1808.4	1729.3
40°	2379.6	2189.4	1881.4	1656.2	1573.8
42.5°	2259.1	2056.2	1735.6	1500.7	1421.5
45°	2132.2	1919.5	1586.5	1360.9	1284.9
47.5°	2011.7	1786.5	1443.8	1218.2	1148.6
50°	1878.4	1653.1	1304.1	1085.0	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.2
55°	1621.2	1373.8	1031.0	840.9	780.6
57.5°	1491.3	1237.5	907.6	729.8	679.0
60°	1357.9	1104.1	777.3	615.7	564.9
62.5°	1228.0	974.2	666.2	514.1	488.8
65°	1094.7	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.6	472.6	307.6	282.4	276.1
75°	583.7	361.6	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.9	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.3	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	609.0	613.9	613.9
107.5°	721.6	733.5	733.5	735.5	721.6
110°	844.2	860.1	860.1	860.1	852.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.7	993.4	990.5	982.6	976.7
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.4	1244.5	1236.7	1228.8
120°	1367.2	1388.9	1367.2	1367.2	1358.3
122.5°	1485.8	1513.4	1499.6	1491.7	1485.8
125°	1610.3	1635.0	1627.1	1618.3	1615.2
127.5°	1731.9	1762.6	1751.7	1739.8	1731.9
130°	1845.6	1881.2	1876.2	1870.3	1859.4
132.5°	1973.1	2000.8	2002.8	1989.0	1981.0
135°	2082.8	2113.5	2119.4	2116.5	2108.6
137.5°	2205.5	2230.1	2235.1	2233.1	2221.3
140°	2313.2	2337.9	2351.7	2351.7	2340.9
142.5°	2423.9	2448.6	2456.5	2459.5	2448.6
145°	2528.7	2548.4	2564.3	2567.2	2556.4
147.5°	2622.6	2647.3	2659.2	2664.1	2653.3
150°	2719.5	2736.3	2747.1	2756.1	2747.1
152.5°	2805.5	2822.3	2836.1	2847.0	2836.1
155°	2891.5	2899.4	2908.3	2922.2	2913.2
157.5°	2965.6	2971.6	2976.5	2996.2	2982.4
160°	3031.9	3037.8	3040.7	3057.6	3045.7
162.5°	3093.1	3093.1	3096.2	3114.9	3101.1
165°	3145.5	3142.5	3142.5	3162.3	3148.5
167.5°	3193.0	3184.1	3184.1	3203.9	3190.0
170°	3228.6	3220.7	3217.7	3237.4	3220.7
172.5°	3253.3	3245.4	3242.4	3262.2	3245.4
175°	3273.1	3265.2	3259.2	3279.0	3262.2
177.5°	3283.9	3276.0	3270.1	3286.9	3270.1
180°	3279.0	3279.0	3279.0	3279.0	3279.0

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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	9.70	10.49	10.72	11.51	12.86	5.66	6.45	6.68	7.47	8.82
	3H	11.38	12.08	12.41	13.11	14.49	6.85	7.55	7.87	8.58	9.95
	4H	11.99	12.66	13.03	13.69	15.07	7.30	7.96	8.33	8.99	10.38
	6H	12.41	13.03	13.46	14.06	15.46	7.62	8.23	8.66	9.26	10.66
	8H	12.54	13.12	13.59	14.17	15.56	7.71	8.29	8.76	9.34	10.73
	12H	12.60	13.16	13.66	14.20	15.61	7.75	8.30	8.81	9.35	10.76
4H	2H	9.72	10.38	10.76	11.41	12.79	6.26	6.92	7.30	7.95	9.33
	3H	11.55	12.10	12.60	13.16	14.55	7.60	8.16	8.65	9.21	10.61
	4H	12.24	12.75	13.30	13.79	15.21	8.15	8.66	9.21	9.70	11.12
	6H	12.76	13.19	13.82	14.26	15.68	8.57	9.00	9.63	10.07	11.49
	8H	12.93	13.34	14.00	14.40	15.83	8.70	9.10	9.76	10.17	11.60
	12H	13.03	13.39	14.11	14.47	15.91	8.76	9.13	9.84	10.20	11.64
8H	4H	12.20	12.61	13.27	13.67	15.10	8.43	8.83	9.50	9.90	11.33
	6H	12.77	13.11	13.86	14.21	15.64	8.95	9.28	10.04	10.39	11.82
	8H	12.99	13.29	14.09	14.38	15.82	9.14	9.43	10.24	10.52	11.97
	12H	13.13	13.39	14.23	14.48	15.96	9.26	9.51	10.36	10.60	12.09
12H	4H	12.15	12.52	13.24	13.60	15.03	8.43	8.80	9.52	9.88	11.31
	6H	12.75	13.04	13.84	14.13	15.58	9.00	9.29	10.09	10.38	11.83
	8H	12.97	13.23	14.07	14.31	15.80	9.21	9.47	10.31	10.55	12.04