

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: P909510

Luminaire Tested: DFN2DIP-SQ4F0-090D080US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909510
REPORT IS A COMBINATION OF REPORTS P900102 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D080US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

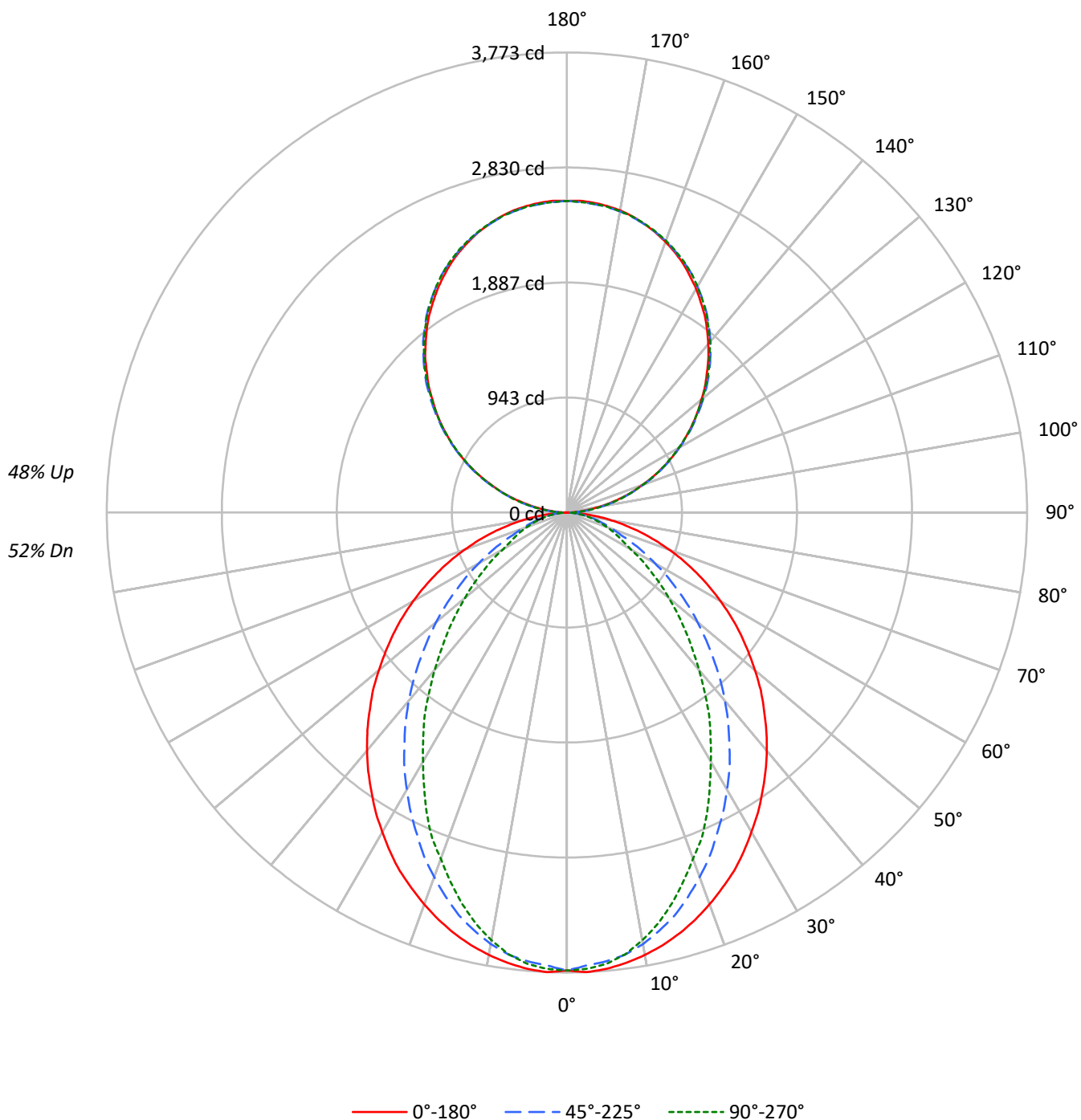
Lumens per Lamp: N/A
Luminaire Lumens: 14875.3 lumens
Efficiency: N/A
Efficacy: 104.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.2
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
RCR																	
0	108	108	108	108	100	100	100	100	84	84	84		71	71	71		58
1	99	95	91	88	91	88	84	82	75	72	70		63	61	60		52
2	90	83	77	72	83	77	72	68	66	62	59		56	53	51		46
3	83	74	66	61	76	68	62	57	59	54	50		50	46	44		42
4	76	65	58	52	70	61	54	49	53	47	43		45	41	38		37
5	70	59	51	45	65	55	48	42	47	42	38		40	36	33		34
6	65	53	45	39	60	49	42	37	43	37	33		37	32	29		31
7	60	48	40	35	55	45	38	33	39	33	29		34	29	26		28
8	56	44	36	31	51	41	34	29	36	30	26		31	27	23		26
9	52	40	33	28	48	37	31	26	33	27	24		28	24	21		24
10	49	37	30	25	45	34	28	24	30	25	21		26	22	19		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2636	2636	2636
5°	2640	2594	2611
10°	2614	2544	2527
15°	2578	2461	2396
20°	2530	2345	2236
25°	2481	2216	2081
30°	2416	2083	1884
35°	2352	1940	1711
40°	2286	1792	1512
45°	2211	1628	1332
50°	2132	1462	1156
55°	2050	1285	987
60°	1955	1100	813
65°	1846	911	733
70°	1714	736	664
75°	1548	650	606
80°	1307	547	528
85°	910	368	402

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2211 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.1	2.4
10°-20°	966.5	6.5
20°-30°	1356.9	9.1
30°-40°	1479.1	9.9
40°-50°	1359.4	9.1
50°-60°	1067.6	7.2
60°-70°	694.9	4.7
70°-80°	357.7	2.4
80°-90°	98.6	0.7
90°-100°	158.1	1.1
100°-110°	502.4	3.4
110°-120°	859.7	5.8
120°-130°	1130.6	7.6
130°-140°	1269.1	8.5
140°-150°	1244.5	8.4
150°-160°	1043.9	7.0
160°-170°	692.3	4.7
170°-180°	242.0	1.6
0°-30°	2675.4	18.0
0°-40°	4154.5	27.9
0°-60°	6581.5	44.2
0°-90°	7732.7	52.0
90°-120°	1520.1	10.2
90°-150°	5164.3	34.7
90°-180°	7143.0	48.0
0°-180°	14875.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3716	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2771	2720	1492
35°	2794	2621	2322	2108	2033	1749
45°	2284	2057	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	592	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
90°	2	28	76	71	73	15
95°	112	134	138	138	134	125
105°	464	470	474	478	478	489
115°	863	875	871	869	863	853
125°	1255	1274	1268	1261	1259	1121
135°	1623	1647	1652	1649	1643	1254
145°	1970	1986	1998	2000	1992	1231
155°	2253	2259	2266	2277	2270	1037
165°	2451	2449	2449	2464	2453	691
175°	2550	2544	2540	2555	2542	242
180°	2555	2555	2555	2555	2555	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.4	3756.4	3756.4	3756.4	3756.4
2.5°	3773.4	3756.4	3718.8	3753.2	3746.3
5°	3756.4	3739.4	3695.1	3725.7	3715.6
7.5°	3725.7	3705.5	3657.9	3671.3	3654.3
10°	3685.0	3661.2	3593.4	3582.9	3562.7
12.5°	3634.1	3603.5	3511.5	3491.3	3453.7
15°	3572.8	3535.3	3419.9	3355.3	3321.4
17.5°	3501.4	3447.0	3304.1	3229.4	3175.0
20°	3419.9	3351.7	3181.8	3097.1	3022.0
22.5°	3331.5	3253.3	3056.0	2940.5	2889.7
25°	3243.2	3134.2	2909.9	2770.7	2719.5
27.5°	3137.9	3022.0	2773.9	2614.1	2535.9
30°	3025.7	2896.2	2624.2	2451.1	2359.1
32.5°	2916.7	2760.2	2481.7	2277.7	2192.5
35°	2794.5	2621.0	2322.0	2107.8	2032.8
37.5°	2675.4	2488.3	2172.3	1937.5	1852.8
40°	2549.6	2345.8	2015.8	1774.5	1686.2
42.5°	2420.4	2203.0	1859.6	1607.9	1523.1
45°	2284.5	2056.6	1699.8	1458.1	1376.6
47.5°	2155.4	1914.1	1546.9	1305.3	1230.6
50°	2012.6	1771.2	1397.2	1162.5	1091.4
52.5°	1873.0	1618.0	1254.5	1030.1	965.5
55°	1737.0	1471.9	1104.7	901.0	836.4
57.5°	1597.8	1325.9	972.4	781.9	727.5
60°	1454.9	1183.0	832.8	659.6	605.2
62.5°	1315.8	1043.8	713.8	550.8	523.7
65°	1172.9	897.4	591.5	476.1	465.6
67.5°	1036.9	761.3	476.1	418.0	407.9
70°	894.1	629.0	394.3	360.3	346.6
72.5°	758.1	506.3	329.6	302.6	295.8
75°	625.4	387.4	272.0	248.1	244.9
77.5°	493.0	275.2	214.2	200.6	193.7
80°	370.4	197.3	163.0	149.7	149.7
82.5°	258.2	132.7	112.2	105.3	105.3
85°	146.0	74.6	64.5	64.5	64.5
87.5°	54.4	27.1	27.1	23.8	23.8
90°	2.3	27.8	75.5	70.9	73.2
92.5°	47.8	64.7	67.1	69.3	69.3
95°	112.5	134.0	137.8	137.8	134.0
97.5°	187.2	207.2	215.7	215.7	215.7
100°	273.5	291.1	297.3	297.3	295.0
102.5°	364.4	377.5	385.9	388.2	385.9
105°	463.7	469.9	474.5	478.4	478.4
107.5°	562.3	571.6	571.6	573.1	562.3
110°	657.8	670.1	670.1	670.1	664.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	761.0	774.2	771.8	765.7	761.0
115°	862.7	875.0	871.2	868.9	862.7
117.5°	963.6	980.6	969.8	963.6	957.5
120°	1065.3	1082.3	1065.3	1065.3	1058.3
122.5°	1157.7	1179.3	1168.5	1162.4	1157.7
125°	1254.8	1274.0	1267.9	1260.9	1258.7
127.5°	1349.6	1373.4	1364.9	1355.7	1349.6
130°	1438.1	1465.8	1462.0	1457.4	1449.0
132.5°	1537.5	1559.0	1560.6	1549.8	1543.7
135°	1623.0	1646.9	1651.5	1649.2	1643.1
137.5°	1718.5	1737.8	1741.6	1740.1	1730.8
140°	1802.5	1821.7	1832.5	1832.5	1824.0
142.5°	1888.8	1908.0	1914.2	1916.5	1908.0
145°	1970.4	1985.8	1998.1	2000.4	1992.0
147.5°	2043.6	2062.9	2072.0	2076.0	2067.5
150°	2119.1	2132.1	2140.6	2147.6	2140.6
152.5°	2186.1	2199.2	2210.0	2218.5	2210.0
155°	2253.1	2259.3	2266.2	2276.9	2270.1
157.5°	2310.9	2315.5	2319.4	2334.7	2324.0
160°	2362.5	2367.1	2369.4	2382.5	2373.3
162.5°	2410.2	2410.2	2412.6	2427.2	2416.4
165°	2451.0	2448.7	2448.7	2464.2	2453.4
167.5°	2488.0	2481.1	2481.1	2496.5	2485.7
170°	2515.8	2509.6	2507.3	2522.7	2509.6
172.5°	2535.1	2528.9	2526.6	2541.9	2528.9
175°	2550.4	2544.3	2539.6	2555.1	2541.9
177.5°	2558.9	2552.7	2548.1	2561.2	2548.1
180°	2555.1	2555.1	2555.1	2555.1	2555.1

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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	10.71	11.56	11.66	12.51	13.76	6.67	7.52	7.62	8.47	9.72
	3H	12.39	13.15	13.35	14.12	15.39	7.86	8.62	8.82	9.58	10.85
	4H	13.00	13.72	13.98	14.69	15.97	8.31	9.03	9.28	10.00	11.28
	6H	13.43	14.09	14.41	15.07	16.36	8.63	9.29	9.62	10.27	11.56
	8H	13.56	14.19	14.55	15.18	16.47	8.73	9.35	9.72	10.35	11.63
	12H	13.62	14.22	14.62	15.21	16.52	8.77	9.37	9.76	10.35	11.66
4H	2H	10.73	11.45	11.71	12.42	13.69	7.27	7.99	8.25	8.96	10.23
	3H	12.57	13.16	13.55	14.16	15.45	8.62	9.22	9.61	10.22	11.51
	4H	13.26	13.80	14.26	14.80	16.11	9.17	9.71	10.17	10.71	12.02
	6H	13.78	14.25	14.79	15.27	16.58	9.59	10.06	10.60	11.08	12.39
	8H	13.96	14.40	14.97	15.41	16.73	9.72	10.16	10.73	11.17	12.50
	12H	14.06	14.45	15.08	15.48	16.81	9.79	10.18	10.82	11.21	12.54
8H	4H	13.23	13.67	14.24	14.68	16.00	9.46	9.89	10.46	10.90	12.23
	6H	13.80	14.16	14.83	15.21	16.54	9.98	10.34	11.01	11.39	12.71
	8H	14.02	14.34	15.06	15.38	16.72	10.17	10.48	11.21	11.52	12.87
	12H	14.16	14.44	15.21	15.48	16.86	10.29	10.57	11.33	11.60	12.99
12H	4H	13.18	13.58	14.21	14.60	15.93	9.46	9.85	10.49	10.88	12.21
	6H	13.78	14.09	14.82	15.13	16.48	10.03	10.34	11.07	11.38	12.73
	8H	14.00	14.28	15.05	15.31	16.70	10.24	10.52	11.28	11.55	12.94