

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: P909278

Luminaire Tested: DFN2DIP-SQ3F0-090D110US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909278
REPORT IS A COMBINATION OF REPORTS P899998 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D110US840-RLLFLL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

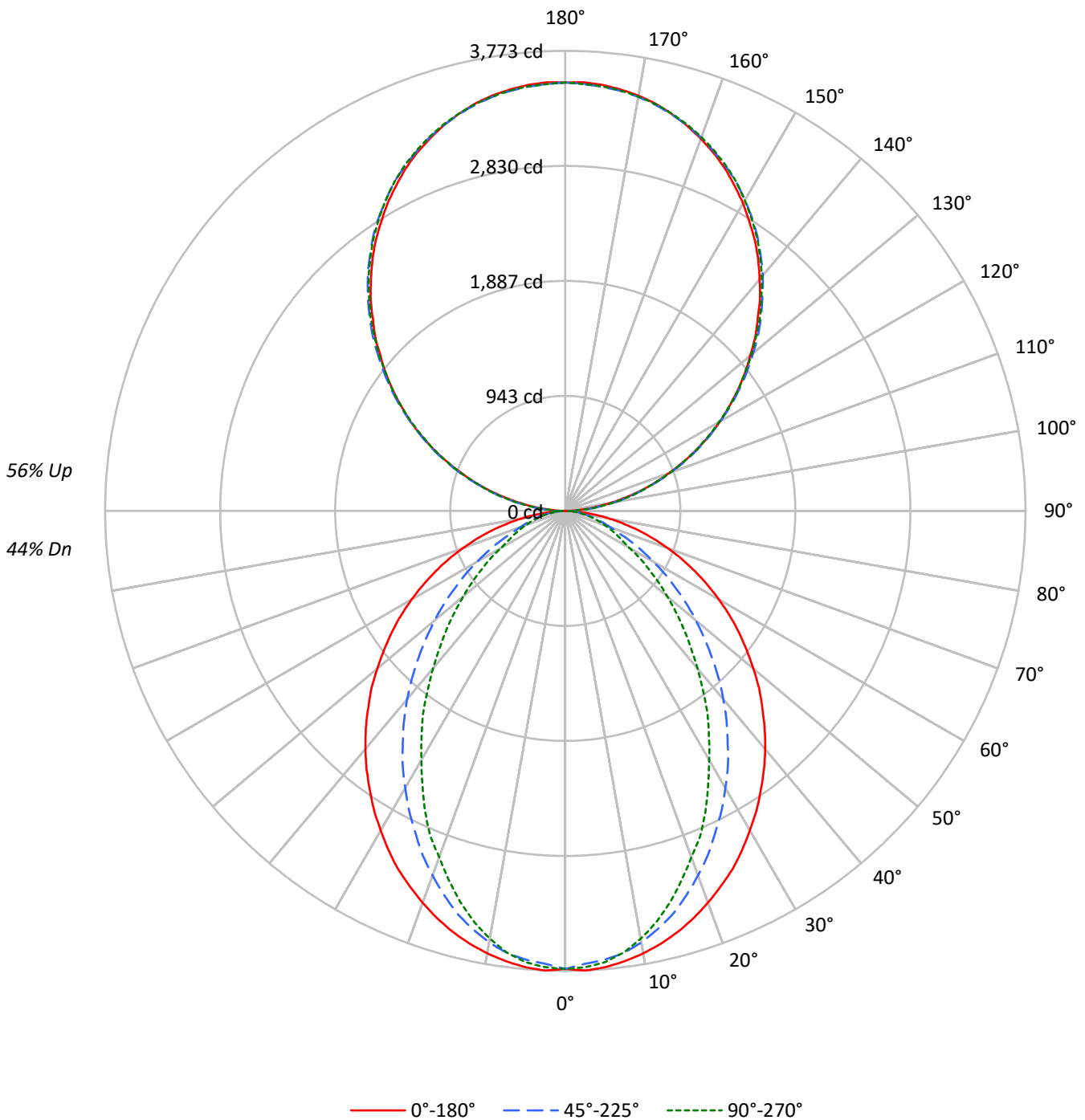
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17556.5 lumens
Efficiency: N/A
Efficacy: 101.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 173.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44	44	44	44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44	38	38	38	38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37	32	32	32	32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28	28	28	28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28	24	24	24	24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25	21	21	21	21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22	19	19	19	19
7	58	46	39	33	53	43	36	31	37	31	27	30	27	24	25	22	20	17	17	17	17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15	15	15	15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14	14	14	14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4304	4304	4304
5°	4308	4233	4261
10°	4263	4147	4121
15°	4201	4007	3906
20°	4121	3816	3642
25°	4039	3601	3387
30°	3929	3382	3064
35°	3822	3146	2780
40°	3712	2903	2455
45°	3585	2633	2160
50°	3453	2361	1873
55°	3315	2070	1596
60°	3156	1767	1313
65°	2972	1459	1180
70°	2749	1172	1066
75°	2468	1027	966
80°	2062	852	834
85°	1398	555	618

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3585 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.1	2.0
10°-20°	966.5	5.5
20°-30°	1356.9	7.7
30°-40°	1479.1	8.4
40°-50°	1359.4	7.7
50°-60°	1067.6	6.1
60°-70°	694.9	4.0
70°-80°	357.7	2.0
80°-90°	101.3	0.6
90°-100°	217.4	1.2
100°-110°	690.8	3.9
110°-120°	1182.1	6.7
120°-130°	1554.6	8.9
130°-140°	1745.0	9.9
140°-150°	1711.2	9.7
150°-160°	1435.4	8.2
160°-170°	951.9	5.4
170°-180°	332.7	1.9
0°-30°	2675.4	15.2
0°-40°	4154.5	23.7
0°-60°	6581.5	37.5
0°-90°	7735.5	44.1
90°-120°	2090.2	11.9
90°-150°	7101.0	40.4
90°-180°	9821.0	55.9
0°-180°	17556.5	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°	3	38	104	98	101	17
95°	155	184	190	190	184	172
105°	638	646	652	658	658	673
115°	1186	1203	1198	1195	1186	1173
125°	1725	1752	1743	1734	1731	1542
135°	2232	2264	2271	2268	2259	1725
145°	2709	2730	2747	2751	2739	1693
155°	3098	3106	3116	3131	3121	1426
165°	3370	3367	3367	3388	3373	951
175°	3507	3498	3492	3513	3495	333
180°	3513	3513	3513	3513	3513	



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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°	3.1	38.2	103.8	97.5	100.6
92.5°	65.6	89.0	92.1	95.3	95.3
95°	154.6	184.3	189.6	189.6	184.3
97.5°	257.4	284.9	296.6	296.6	296.6
100°	376.0	400.3	408.8	408.8	405.7
102.5°	501.0	519.0	530.7	533.8	530.7
105°	637.6	646.1	652.5	657.7	657.7
107.5°	773.2	785.9	785.9	788.0	773.2
110°	904.5	921.5	921.5	921.5	913.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1046.4	1064.4	1061.3	1052.8	1046.4
115°	1186.3	1203.2	1197.9	1194.8	1186.3
117.5°	1325.0	1348.3	1333.4	1325.0	1316.6
120°	1464.8	1488.1	1464.8	1464.8	1455.3
122.5°	1592.0	1621.5	1606.7	1598.2	1592.0
125°	1725.4	1751.8	1743.3	1733.8	1730.6
127.5°	1855.6	1888.4	1876.8	1864.1	1855.6
130°	1977.4	2015.6	2010.2	2003.9	1992.3
132.5°	2114.1	2143.7	2145.9	2131.0	2122.5
135°	2231.6	2264.4	2270.8	2267.7	2259.2
137.5°	2363.0	2389.4	2394.7	2392.6	2380.0
140°	2478.4	2504.9	2519.7	2519.7	2508.1
142.5°	2597.1	2623.5	2632.0	2635.1	2623.5
145°	2709.3	2730.5	2747.4	2750.6	2739.0
147.5°	2810.0	2836.4	2849.1	2854.4	2842.8
150°	2913.8	2931.7	2943.4	2952.9	2943.4
152.5°	3005.9	3023.8	3038.7	3050.4	3038.7
155°	3098.1	3106.4	3116.0	3130.9	3121.3
157.5°	3177.4	3183.8	3189.1	3210.3	3195.4
160°	3248.4	3254.8	3257.9	3276.0	3263.3
162.5°	3314.1	3314.1	3317.3	3337.4	3322.6
165°	3370.2	3367.0	3367.0	3388.2	3373.4
167.5°	3421.0	3411.5	3411.5	3432.7	3417.9
170°	3459.2	3450.7	3447.6	3468.7	3450.7
172.5°	3485.7	3477.2	3474.0	3495.2	3477.2
175°	3506.9	3498.4	3492.0	3513.2	3495.2
177.5°	3518.5	3510.0	3503.6	3521.7	3503.6
180°	3513.2	3513.2	3513.2	3513.2	3513.2



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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	11.60	12.39	12.61	13.40	14.76	7.56	8.35	8.57	9.36	10.72
	3H	13.27	13.97	14.29	15.00	16.38	8.74	9.44	9.76	10.47	11.84
	4H	13.87	14.54	14.91	15.57	16.95	9.18	9.85	10.22	10.88	12.26
	6H	14.29	14.90	15.33	15.93	17.33	9.50	10.11	10.54	11.14	12.54
	8H	14.41	14.99	15.46	16.04	17.43	9.58	10.16	10.63	11.21	12.60
	12H	14.47	15.02	15.53	16.07	17.48	9.62	10.17	10.68	11.22	12.63
4H	2H	11.61	12.28	12.65	13.31	14.69	8.15	8.81	9.19	9.84	11.23
	3H	13.43	13.98	14.48	15.04	16.44	9.49	10.04	10.54	11.10	12.49
	4H	14.12	14.62	15.17	15.67	17.09	10.03	10.53	11.08	11.58	13.00
	6H	14.63	15.06	15.69	16.13	17.55	10.44	10.87	11.50	11.94	13.36
	8H	14.80	15.20	15.86	16.27	17.70	10.56	10.97	11.63	12.03	13.46
	12H	14.89	15.25	15.97	16.33	17.77	10.62	10.99	11.70	12.07	13.50
8H	4H	14.08	14.49	15.15	15.55	16.98	10.30	10.71	11.37	11.77	13.20
	6H	14.64	14.97	15.73	16.08	17.51	10.81	11.14	11.90	12.25	13.68
	8H	14.85	15.15	15.95	16.24	17.68	11.00	11.29	12.09	12.38	13.83
	12H	14.99	15.24	16.08	16.33	17.82	11.11	11.37	12.21	12.45	13.94
12H	4H	14.03	14.40	15.11	15.47	16.91	10.30	10.67	11.39	11.75	13.18
	6H	14.61	14.91	15.71	16.00	17.44	10.86	11.15	11.95	12.24	13.69
	8H	14.83	15.09	15.93	16.17	17.66	11.06	11.32	12.16	12.40	13.89