

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: P909270

Luminaire Tested: DFN2DIP-SQ3F0-090D090US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909270
REPORT IS A COMBINATION OF REPORTS P899962 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D090US840-RLLFLL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

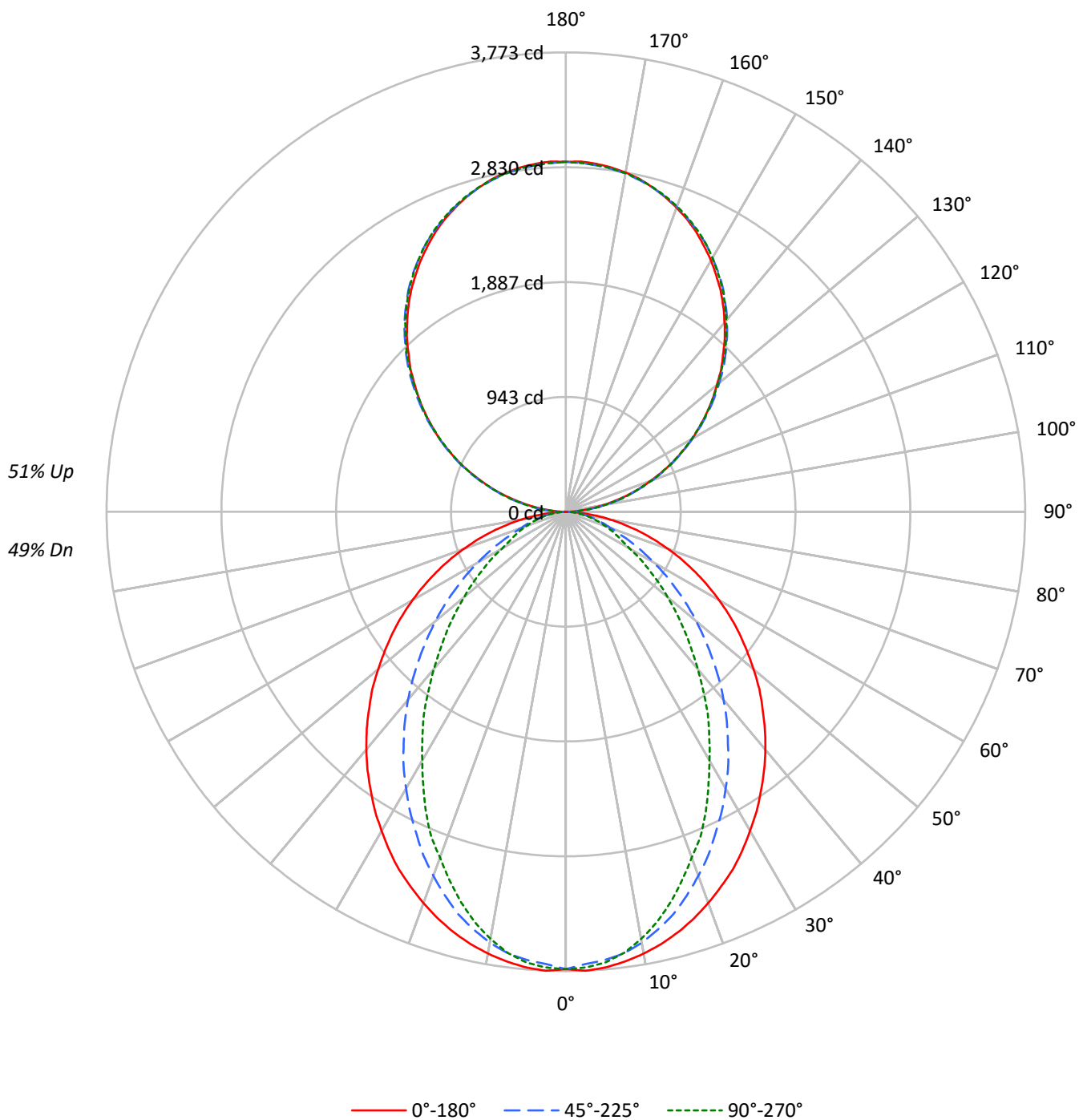
Lumens per Lamp: N/A
Luminaire Lumens: 15769.1 lumens
Efficiency: N/A
Efficacy: 100.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 156.3
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

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	2.2
10°-20°	966.5	6.1
20°-30°	1356.9	8.6
30°-40°	1479.1	9.4
40°-50°	1359.4	8.6
50°-60°	1067.6	6.8
60°-70°	694.9	4.4
70°-80°	357.7	2.3
80°-90°	99.5	0.6
90°-100°	177.9	1.1
100°-110°	565.2	3.6
110°-120°	967.2	6.1
120°-130°	1272.0	8.1
130°-140°	1427.7	9.1
140°-150°	1400.0	8.9
150°-160°	1174.4	7.4
160°-170°	778.9	4.9
170°-180°	272.2	1.7
0°-30°	2675.4	17.0
0°-40°	4154.5	26.3
0°-60°	6581.5	41.7
0°-90°	7733.6	49.0
90°-120°	1710.2	10.8
90°-150°	5809.9	36.8
90°-180°	8035.0	51.0
0°-180°	15769.1	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	31	85	80	82	16
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	

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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°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

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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	12.09	12.92	13.06	13.90	15.18	8.05	8.88	9.02	9.86	11.14
	3H	13.76	14.50	14.75	15.49	16.80	9.23	9.97	10.22	10.96	12.27
	4H	14.37	15.07	15.37	16.06	17.38	9.68	10.38	10.68	11.37	12.69
	6H	14.79	15.43	15.79	16.43	17.76	9.99	10.63	11.00	11.63	12.96
	8H	14.91	15.52	15.92	16.54	17.86	10.08	10.69	11.09	11.71	13.03
	12H	14.97	15.55	15.99	16.56	17.91	10.12	10.70	11.14	11.71	13.06
4H	2H	12.11	12.80	13.11	13.80	15.12	8.64	9.34	9.65	10.33	11.65
	3H	13.93	14.51	14.94	15.53	16.86	9.99	10.56	11.00	11.59	12.92
	4H	14.62	15.15	15.64	16.16	17.52	10.53	11.06	11.55	12.07	13.43
	6H	15.13	15.58	16.16	16.62	17.97	10.94	11.39	11.97	12.43	13.79
	8H	15.30	15.73	16.33	16.76	18.12	11.07	11.49	12.10	12.52	13.89
	12H	15.39	15.78	16.44	16.82	18.19	11.13	11.51	12.18	12.56	13.93
8H	4H	14.58	15.01	15.62	16.04	17.41	10.81	11.23	11.84	12.26	13.63
	6H	15.15	15.49	16.20	16.57	17.93	11.32	11.67	12.37	12.74	14.10
	8H	15.36	15.67	16.42	16.72	18.11	11.50	11.81	12.56	12.87	14.25
	12H	15.49	15.76	16.56	16.82	18.24	11.61	11.89	12.68	12.94	14.36
12H	4H	14.54	14.92	15.58	15.97	17.34	10.81	11.19	11.86	12.24	13.61
	6H	15.12	15.43	16.18	16.49	17.87	11.36	11.67	12.43	12.73	14.11
	8H	15.34	15.61	16.40	16.66	18.09	11.57	11.84	12.63	12.89	14.32