

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: P909043

Luminaire Tested: DFN2DIP-SQ2F0-070D080US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909043
REPORT IS A COMBINATION OF REPORTS P901360 AND P898215
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-070D080US840-RLLONL
Description: 2 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

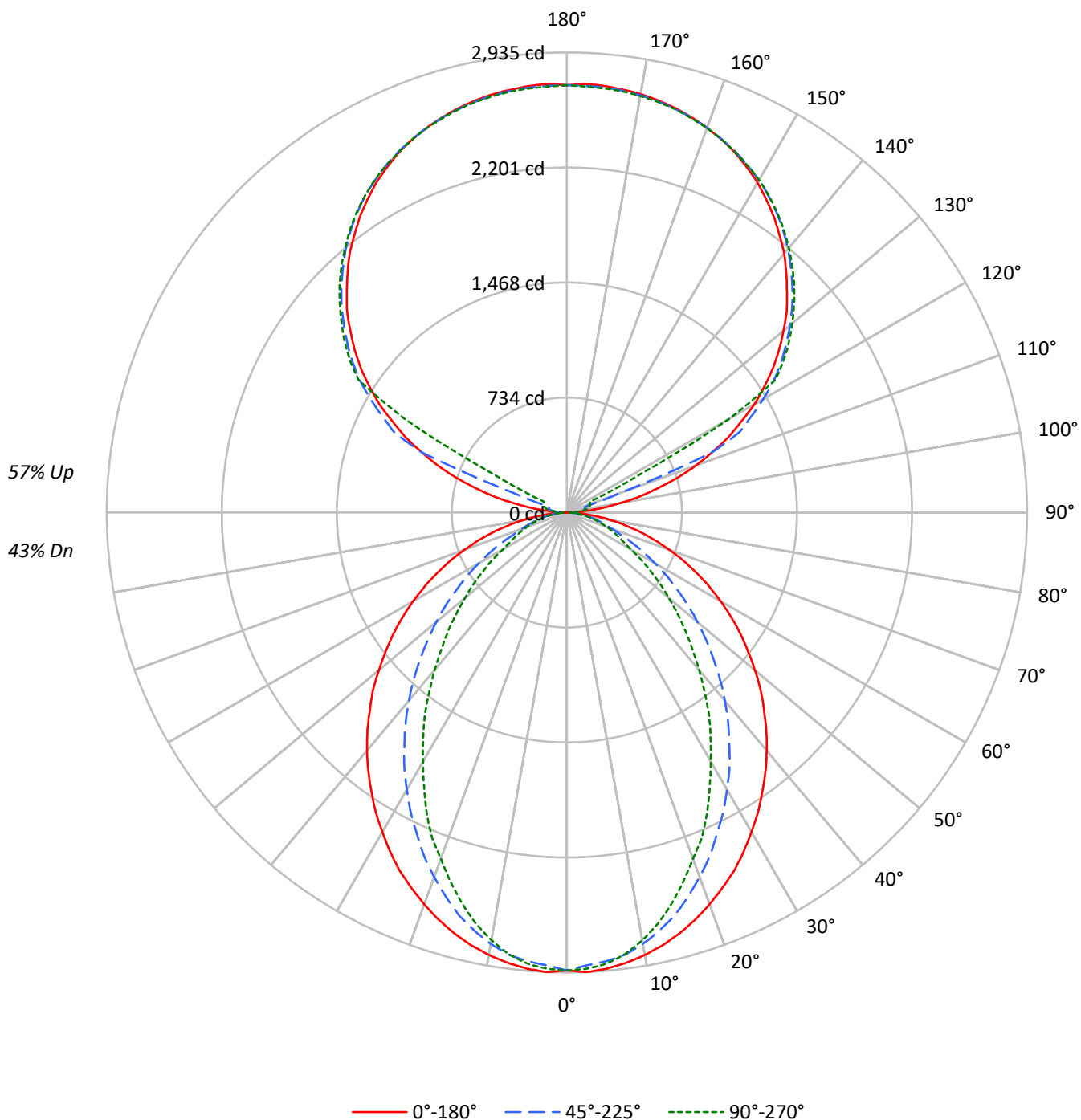
Lumens per Lamp: N/A
Luminaire Lumens: 14006.8 lumens
Efficiency: N/A
Efficacy: 105.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 132.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909043

CATALOG NUMBER: DFN2DIP-SQ2F0-070D080US840-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P909043

CATALOG NUMBER: DFN2DIP-SQ2F0-070D080US840-RLLONL

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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50
1	97	92	89	85	88	85	82	79	70	68	66	57	55	54	44	44	43
2	88	81	75	70	81	75	70	65	62	58	55	50	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	33	32
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	26	24
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	26	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	20	17
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	6424	6424	6424
5°	6423	6308	6354
10°	6349	6171	6138
15°	6250	5953	5810
20°	6123	5659	5411
25°	5994	5332	5026
30°	5823	4998	4540
35°	5655	4640	4114
40°	5484	4271	3627
45°	5287	3864	3186
50°	5081	3454	2756
55°	4865	3018	2343
60°	4616	2565	1920
65°	4327	2105	1718
70°	3977	1677	1541
75°	3537	1451	1385
80°	2904	1178	1173
85°	1890	732	835

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 5287 cd/sqm

TEST NUMBER: P909043

CATALOG NUMBER: DFN2DIP-SQ2F0-070D080US840-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	2.0
10°-20°	751.7	5.4
20°-30°	1055.3	7.5
30°-40°	1150.4	8.2
40°-50°	1057.3	7.5
50°-60°	830.4	5.9
60°-70°	540.5	3.9
70°-80°	278.2	2.0
80°-90°	75.8	0.5
90°-100°	89.9	0.6
100°-110°	335.1	2.4
110°-120°	888.9	6.3
120°-130°	1474.3	10.5
130°-140°	1566.0	11.2
140°-150°	1455.4	10.4
150°-160°	1170.1	8.4
160°-170°	754.0	5.4
170°-180°	259.5	1.9
0°-30°	2080.9	14.9
0°-40°	3231.2	23.1
0°-60°	5118.9	36.5
0°-90°	6013.4	42.9
90°-120°	1314.0	9.4
90°-150°	5809.7	41.5
90°-180°	7993.0	57.1
0°-180°	14006.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	2	24	39	49	53	13
95°	128	63	77	87	85	152
105°	600	659	120	142	150	641
115°	1134	1168	1217	304	162	1117
125°	1604	1630	1667	1681	1687	1430
135°	1985	2016	2034	2054	2050	1533
145°	2302	2300	2334	2348	2338	1440
155°	2535	2518	2541	2553	2537	1168
165°	2671	2660	2665	2679	2665	755
175°	2732	2719	2723	2736	2717	260
180°	2726	2726	2726	2726	2726	

TEST NUMBER: P909043

CATALOG NUMBER: DFN2DIP-SQ2F0-070D080US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	1.9	23.6	39.4	49.4	53.2
92.5°	49.4	41.5	47.4	51.3	53.2
95°	128.2	63.0	76.9	86.9	84.8
97.5°	230.8	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.2	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.8	659.0	120.4	142.0	150.0
107.5°	739.8	789.0	124.4	145.9	153.9
110°	874.1	915.3	345.4	148.0	155.8

TEST NUMBER: P909043

CATALOG NUMBER: DFN2DIP-SQ2F0-070D080US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1000.4	1035.7	1002.3	151.8	157.9
115°	1134.4	1167.9	1217.3	303.9	161.9
117.5°	1250.8	1290.2	1323.9	1041.6	524.8
120°	1381.1	1410.6	1446.2	1469.9	1203.5
122.5°	1491.4	1523.1	1562.7	1574.4	1576.5
125°	1603.9	1629.6	1667.1	1680.9	1686.8
127.5°	1706.5	1734.1	1763.9	1783.5	1785.4
130°	1803.2	1834.8	1856.4	1878.2	1876.3
132.5°	1901.9	1927.6	1949.2	1967.0	1965.1
135°	1984.8	2016.4	2034.0	2054.0	2049.9
137.5°	2071.5	2095.2	2115.1	2134.8	2128.9
140°	2156.3	2172.2	2193.8	2211.6	2201.7
142.5°	2227.6	2241.3	2266.8	2282.6	2272.7
145°	2302.5	2300.4	2333.9	2347.7	2337.8
147.5°	2367.4	2361.6	2395.0	2404.9	2397.1
150°	2430.6	2416.8	2448.4	2460.1	2450.3
152.5°	2483.9	2468.1	2497.6	2509.6	2495.8
155°	2535.2	2517.6	2541.2	2552.9	2537.3
157.5°	2576.6	2560.9	2578.7	2592.5	2576.6
160°	2612.2	2600.3	2612.2	2623.9	2610.1
162.5°	2643.6	2631.9	2641.7	2655.5	2637.8
165°	2671.3	2659.6	2665.4	2679.2	2665.4
167.5°	2693.0	2681.1	2687.2	2701.0	2683.2
170°	2710.9	2698.9	2702.9	2716.7	2698.9
172.5°	2722.6	2710.9	2714.8	2728.7	2710.9
175°	2732.4	2718.6	2722.6	2736.3	2716.7
177.5°	2736.3	2722.6	2724.6	2738.5	2720.7
180°	2726.5	2726.5	2726.5	2726.5	2726.5

TEST NUMBER: P909043

CATALOG NUMBER: DFN2DIP-SQ2F0-070D080US840-RLONL

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	12.80	13.57	13.82	14.60	15.97	8.76	9.53	9.78	10.56	11.93
	3H	14.45	15.14	15.48	16.18	17.57	9.92	10.62	10.96	11.65	13.04
	4H	15.04	15.70	16.09	16.74	18.14	10.36	11.01	11.40	12.05	13.45
	6H	15.45	16.05	16.50	17.09	18.50	10.66	11.26	11.71	12.31	13.72
	8H	15.56	16.14	16.62	17.20	18.60	10.74	11.32	11.80	12.37	13.78
	12H	15.62	16.16	16.68	17.21	18.64	10.77	11.32	11.84	12.37	13.80
4H	2H	12.80	13.46	13.85	14.50	15.90	9.34	9.99	10.39	11.03	12.43
	3H	14.61	15.15	15.66	16.22	17.63	10.66	11.21	11.72	12.27	13.68
	4H	15.28	15.78	16.34	16.84	18.27	11.19	11.69	12.25	12.75	14.18
	6H	15.77	16.20	16.85	17.28	18.71	11.59	12.02	12.66	13.10	14.52
	8H	15.94	16.34	17.01	17.41	18.85	11.70	12.10	12.78	13.18	14.62
	12H	16.02	16.38	17.11	17.47	18.91	11.76	12.12	12.85	13.20	14.65
8H	4H	15.24	15.64	16.31	16.71	18.16	11.45	11.85	12.53	12.93	14.37
	6H	15.78	16.11	16.88	17.23	18.67	11.95	12.28	13.04	13.39	14.83
	8H	15.99	16.27	17.09	17.37	18.83	12.12	12.41	13.23	13.51	14.97
	12H	16.11	16.36	17.21	17.45	18.95	12.22	12.48	13.33	13.57	15.07
12H	4H	15.19	15.55	16.28	16.64	18.08	11.45	11.81	12.54	12.90	14.35
	6H	15.76	16.05	16.86	17.14	18.60	11.99	12.28	13.09	13.38	14.84
	8H	15.96	16.21	17.07	17.31	18.81	12.18	12.44	13.29	13.53	15.03