

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: P920571

Luminaire Tested: DFN2DIP-SQ4F0-140D090US935-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920571
REPORT IS A COMBINATION OF REPORTS P901648 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

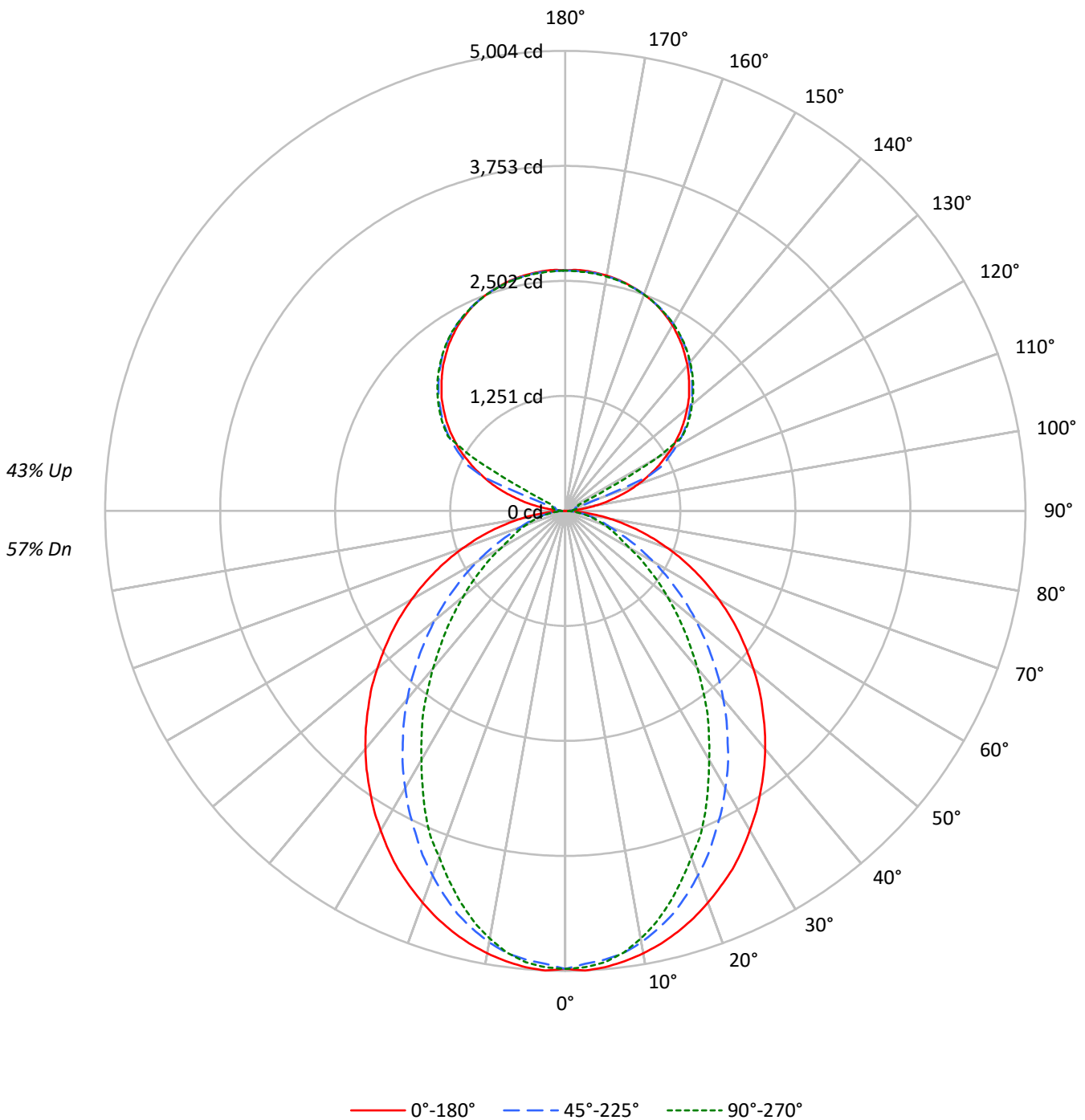
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17917.4 lumens
Efficiency: N/A
Efficacy: 85.1 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): 210.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P920571
CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P920571
 CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-RLLONL

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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63	57	57	57	57
1	100	96	92	89	93	89	86	83	77	75	73	66	65	63	56	55	54	49	49	49	49
2	91	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	46	42	42	42	42
3	84	75	67	62	78	70	64	59	61	56	52	53	49	46	45	42	40	36	36	36	36
4	77	66	59	53	72	62	55	50	55	49	45	47	43	40	41	38	35	32	32	32	32
5	71	60	52	46	66	56	49	44	49	44	39	43	38	35	37	34	31	28	28	28	28
6	66	54	46	40	61	51	43	38	45	39	35	39	34	31	34	30	28	25	25	25	25
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25	22	22	22	22
8	57	44	37	31	53	42	35	30	37	32	27	33	28	25	29	25	22	20	20	20	20
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	26	23	20	18	18	18	18
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19	17	17	17	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3496	3496	3496
5°	3501	3441	3463
10°	3467	3374	3351
15°	3419	3263	3178
20°	3356	3110	2965
25°	3291	2938	2759
30°	3204	2762	2498
35°	3119	2573	2269
40°	3032	2377	2005
45°	2932	2159	1767
50°	2828	1939	1533
55°	2719	1705	1309
60°	2593	1459	1079
65°	2449	1209	972
70°	2273	976	881
75°	2053	862	804
80°	1734	725	701
85°	1207	488	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2932 cd/sqm



TEST NUMBER: P920571

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	466.9	2.6
10°-20°	1281.8	7.2
20°-30°	1799.5	10.0
30°-40°	1961.6	10.9
40°-50°	1802.9	10.1
50°-60°	1415.9	7.9
60°-70°	921.6	5.1
70°-80°	474.4	2.6
80°-90°	125.7	0.7
90°-100°	86.2	0.5
100°-110°	321.5	1.8
110°-120°	852.6	4.8
120°-130°	1414.1	7.9
130°-140°	1502.1	8.4
140°-150°	1396.0	7.8
150°-160°	1122.4	6.3
160°-170°	723.2	4.0
170°-180°	248.9	1.4
0°-30°	3548.2	19.8
0°-40°	5509.8	30.8
0°-60°	8728.7	48.7
0°-90°	10250.5	57.2
90°-120°	1260.3	7.0
90°-150°	5572.4	31.1
90°-180°	7667.0	42.8
0°-180°	17917.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4982	4982	4982	4982	4982	
5°	4982	4959	4900	4941	4928	472
15°	4738	4689	4536	4450	4405	1335
25°	4301	4157	3859	3675	3607	1978
35°	3706	3476	3080	2795	2696	2320
45°	3030	2728	2254	1934	1826	2340
55°	2304	1952	1465	1195	1109	2059
65°	1556	1190	784	631	618	1542
75°	829	514	361	329	325	877
85°	194	99	86	86	86	222
90°	2	23	38	47	51	17
95°	123	60	74	83	81	146
105°	575	632	116	136	144	615
115°	1088	1120	1168	291	155	1071
125°	1538	1563	1599	1612	1618	1372
135°	1904	1934	1951	1970	1966	1471
145°	2208	2206	2239	2252	2242	1381
155°	2432	2415	2437	2449	2434	1121
165°	2562	2551	2557	2570	2557	724
175°	2621	2608	2611	2625	2606	249
180°	2615	2615	2615	2615	2615	



TEST NUMBER: P920571

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4981.9	4981.9	4981.9	4981.9	4981.9
2.5°	5004.4	4981.9	4932.1	4977.6	4968.5
5°	4981.9	4959.4	4900.5	4941.3	4927.8
7.5°	4941.3	4914.4	4851.3	4869.0	4846.6
10°	4887.2	4855.6	4765.7	4751.8	4725.0
12.5°	4819.7	4779.1	4657.1	4630.3	4580.6
15°	4738.4	4688.6	4535.6	4450.0	4405.0
17.5°	4643.7	4571.5	4382.0	4283.0	4210.8
20°	4535.6	4445.2	4219.9	4107.5	4008.0
22.5°	4418.4	4314.6	4053.0	3899.9	3832.5
25°	4301.2	4156.7	3859.3	3674.6	3606.6
27.5°	4161.5	4008.0	3678.9	3467.0	3363.2
30°	4012.8	3841.1	3480.4	3250.8	3128.8
32.5°	3868.3	3660.7	3291.4	3020.7	2907.8
35°	3706.2	3476.1	3079.5	2795.4	2695.9
37.5°	3548.3	3300.0	2881.0	2569.6	2457.2
40°	3381.4	3111.1	2673.4	2353.5	2236.3
42.5°	3210.1	2921.7	2466.3	2132.4	2020.0
45°	3029.8	2727.5	2254.4	1933.9	1825.8
47.5°	2858.5	2538.6	2051.6	1731.1	1632.1
50°	2669.1	2349.1	1853.0	1541.7	1447.4
52.5°	2484.0	2145.8	1663.6	1366.1	1280.5
55°	2303.7	1952.1	1465.2	1194.9	1109.2
57.5°	2119.0	1758.3	1289.6	1037.1	964.8
60°	1929.6	1568.9	1104.5	874.9	802.6
62.5°	1745.0	1384.3	946.7	730.4	694.6
65°	1555.6	1190.1	784.5	631.4	617.5
67.5°	1375.2	1009.8	631.4	554.4	541.0
70°	1185.8	834.2	522.8	477.9	459.7
72.5°	1005.5	671.6	437.2	401.3	392.3
75°	829.4	513.8	360.7	329.1	324.8
77.5°	653.9	365.0	284.1	266.0	256.8
80°	491.3	261.7	216.2	198.5	198.5
82.5°	342.5	176.0	148.8	139.7	139.7
85°	193.7	99.0	85.6	85.6	85.6
87.5°	72.2	35.9	35.9	31.6	31.6
90°	1.8	22.7	37.7	47.4	51.0
92.5°	47.4	39.8	45.4	49.2	51.0
95°	123.0	60.4	73.7	83.3	81.4
97.5°	221.4	66.3	96.4	102.2	104.0
100°	335.0	75.8	107.9	123.0	126.7
102.5°	459.8	456.2	111.7	132.3	138.2
105°	575.2	632.1	115.5	136.2	143.8
107.5°	709.6	756.8	119.3	140.0	147.7
110°	838.4	878.0	331.2	142.0	149.5



TEST NUMBER: P920571

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-RLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	959.5	993.4	961.3	145.6	151.4
115°	1088.0	1120.2	1167.6	291.4	155.2
117.5°	1199.7	1237.5	1269.8	999.1	503.3
120°	1324.6	1353.0	1387.2	1409.8	1154.3
122.5°	1430.5	1460.9	1498.8	1510.0	1512.1
125°	1538.3	1563.1	1599.0	1612.3	1617.9
127.5°	1636.8	1663.3	1691.9	1710.7	1712.5
130°	1729.6	1760.0	1780.6	1801.5	1799.7
132.5°	1824.2	1848.9	1869.6	1886.7	1884.9
135°	1903.8	1934.1	1950.9	1970.0	1966.3
137.5°	1986.9	2009.6	2028.7	2047.5	2041.9
140°	2068.2	2083.5	2104.2	2121.2	2111.9
142.5°	2136.6	2149.8	2174.3	2189.3	2180.0
145°	2208.5	2206.4	2238.6	2251.9	2242.4
147.5°	2270.7	2265.1	2297.2	2306.7	2299.2
150°	2331.4	2318.2	2348.5	2359.7	2350.3
152.5°	2382.4	2367.3	2395.6	2407.1	2393.8
155°	2431.6	2414.8	2437.4	2448.7	2433.6
157.5°	2471.4	2456.3	2473.4	2486.6	2471.4
160°	2505.5	2494.1	2505.5	2516.8	2503.5
162.5°	2535.6	2524.4	2533.8	2547.1	2530.0
165°	2562.2	2550.9	2556.6	2569.8	2556.6
167.5°	2583.1	2571.6	2577.4	2590.7	2573.6
170°	2600.1	2588.7	2592.5	2605.7	2588.7
172.5°	2611.4	2600.1	2603.9	2617.2	2600.1
175°	2620.8	2607.5	2611.4	2624.6	2605.7
177.5°	2624.6	2611.4	2613.4	2626.6	2609.6
180°	2615.2	2615.2	2615.2	2615.2	2615.2



TEST NUMBER: P920571
 CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US935-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	12.16	13.05	13.06	13.96	15.13	8.12	9.01	9.02	9.92	11.09
	3H	13.84	14.64	14.75	15.56	16.76	9.31	10.11	10.22	11.03	12.23
	4H	14.46	15.21	15.38	16.14	17.34	9.76	10.52	10.69	11.45	12.65
	6H	14.89	15.58	15.82	16.51	17.73	10.09	10.78	11.03	11.72	12.93
	8H	15.02	15.68	15.96	16.63	17.84	10.18	10.84	11.13	11.79	13.01
	12H	15.08	15.71	16.03	16.66	17.89	10.23	10.86	11.18	11.80	13.04
4H	2H	12.18	12.94	13.11	13.86	15.07	8.72	9.48	9.65	10.41	11.61
	3H	14.02	14.65	14.96	15.61	16.82	10.08	10.71	11.02	11.67	12.88
	4H	14.72	15.29	15.67	16.24	17.49	10.63	11.20	11.58	12.16	13.40
	6H	15.24	15.73	16.21	16.71	17.95	11.05	11.54	12.02	12.52	13.76
	8H	15.42	15.88	16.39	16.85	18.11	11.18	11.64	12.15	12.61	13.87
	12H	15.52	15.93	16.51	16.92	18.18	11.25	11.67	12.24	12.65	13.91
8H	4H	14.69	15.15	15.66	16.12	17.38	10.92	11.38	11.88	12.35	13.60
	6H	15.27	15.64	16.26	16.66	17.91	11.44	11.82	12.43	12.83	14.08
	8H	15.48	15.82	16.49	16.82	18.09	11.63	11.97	12.63	12.97	14.24
	12H	15.63	15.92	16.63	16.92	18.24	11.75	12.05	12.76	13.04	14.36
12H	4H	14.65	15.06	15.63	16.05	17.31	10.93	11.34	11.91	12.33	13.59
	6H	15.24	15.58	16.24	16.58	17.85	11.49	11.82	12.49	12.83	14.10
	8H	15.47	15.76	16.47	16.76	18.08	11.70	12.00	12.71	12.99	14.31