

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: P920619

Luminaire Tested: DFN2DIP-SQ4F0-160D120US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920619
REPORT IS A COMBINATION OF REPORTS P901704 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D120US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

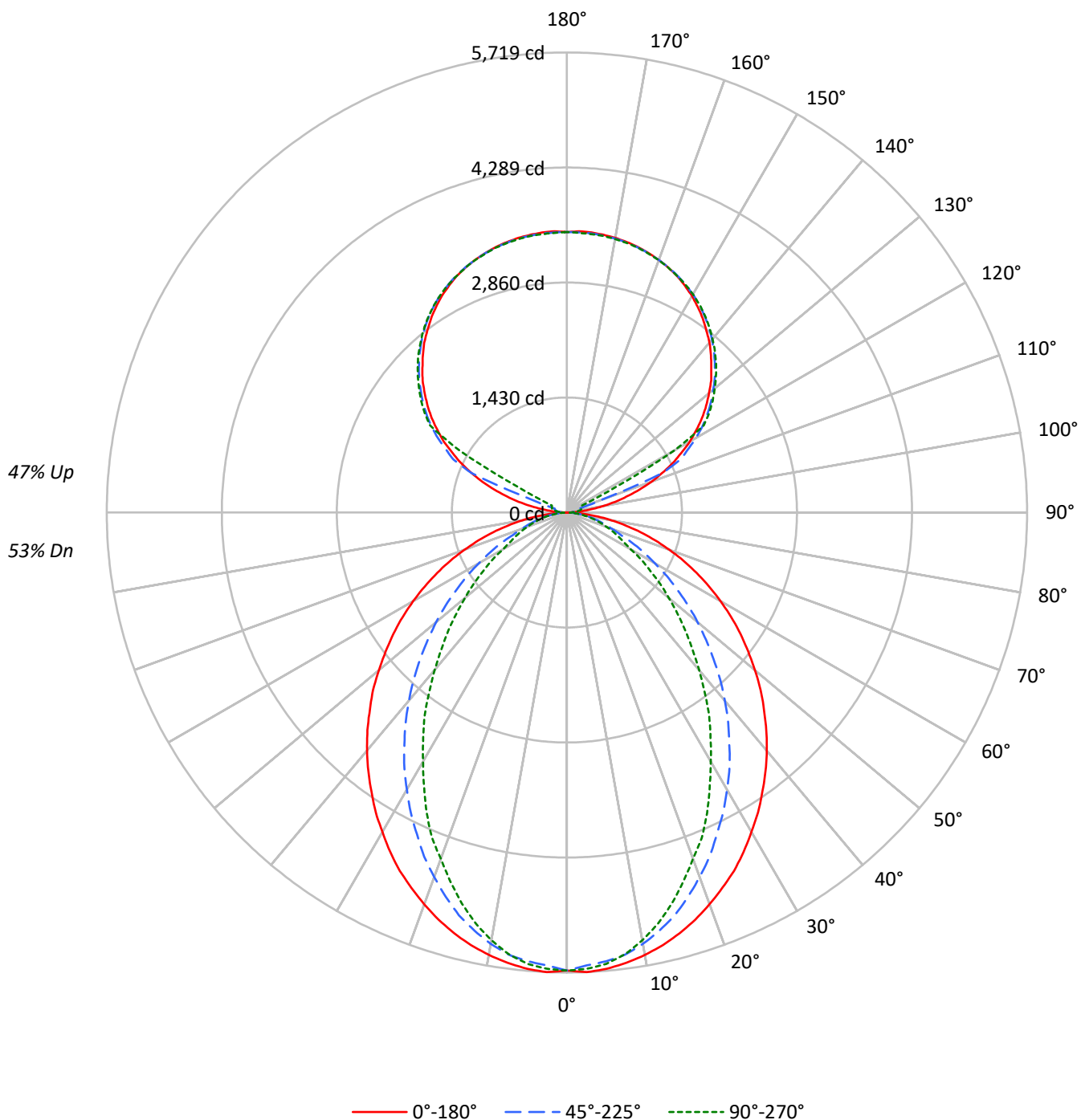
Lumens per Lamp: N/A
Luminaire Lumens: 21938.2 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 256.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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: P920619

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US935-RLLONL

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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	83	78	73	84	78	73	68	67	63	60	57	54	52	47	45	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38
4	76	66	58	52	70	61	55	49	53	48	44	45	42	38	38	35	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	28	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23
8	56	44	36	31	52	41	34	29	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	26	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3995	3995	3995
5°	4001	3932	3958
10°	3962	3856	3830
15°	3907	3729	3632
20°	3835	3554	3389
25°	3761	3358	3154
30°	3662	3157	2855
35°	3564	2940	2593
40°	3465	2716	2292
45°	3350	2468	2019
50°	3232	2216	1752
55°	3107	1948	1496
60°	2964	1667	1233
65°	2798	1382	1111
70°	2598	1115	1007
75°	2347	985	919
80°	1982	829	801
85°	1380	558	610

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3350 cd/sqm

TEST NUMBER: P920619

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	533.6	2.4
10°-20°	1464.9	6.7
20°-30°	2056.6	9.4
30°-40°	2241.8	10.2
40°-50°	2060.5	9.4
50°-60°	1618.2	7.4
60°-70°	1053.3	4.8
70°-80°	542.2	2.5
80°-90°	144.6	0.7
90°-100°	115.0	0.5
100°-110°	428.6	2.0
110°-120°	1136.8	5.2
120°-130°	1885.4	8.6
130°-140°	2002.8	9.1
140°-150°	1861.3	8.5
150°-160°	1496.5	6.8
160°-170°	964.3	4.4
170°-180°	331.9	1.5
0°-30°	4055.1	18.5
0°-40°	6296.9	28.7
0°-60°	9975.6	45.5
0°-90°	11715.7	53.4
90°-120°	1680.4	7.7
90°-150°	7429.9	33.9
90°-180°	10223.0	46.6
0°-180°	21938.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5694	5694	5694	5694	5694	
5°	5694	5668	5601	5647	5632	540
15°	5415	5358	5184	5086	5034	1526
25°	4916	4751	4410	4200	4122	2261
35°	4236	3973	3520	3195	3081	2651
45°	3463	3117	2576	2210	2087	2674
55°	2633	2231	1674	1366	1268	2353
65°	1778	1360	897	722	706	1762
75°	948	587	412	376	371	1003
85°	221	113	98	98	98	254
90°	2	30	50	63	68	21
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

TEST NUMBER: P920619

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5693.6	5693.6	5693.6	5693.6	5693.6
2.5°	5719.3	5693.6	5636.7	5688.7	5678.3
5°	5693.6	5667.9	5600.6	5647.1	5631.8
7.5°	5647.1	5616.5	5544.3	5564.5	5538.9
10°	5585.4	5549.3	5446.5	5430.7	5400.0
12.5°	5508.2	5461.8	5322.4	5291.8	5235.0
15°	5415.3	5358.5	5183.6	5085.7	5034.3
17.5°	5307.1	5224.5	5008.1	4894.9	4812.4
20°	5183.6	5080.2	4822.7	4694.2	4580.6
22.5°	5049.6	4930.9	4631.9	4457.0	4379.9
25°	4915.7	4750.6	4410.5	4199.5	4121.9
27.5°	4756.1	4580.6	4204.4	3962.3	3843.7
30°	4586.0	4389.8	3977.6	3715.2	3575.8
32.5°	4421.0	4183.7	3761.6	3452.3	3323.2
35°	4235.6	3972.6	3519.5	3194.7	3081.1
37.5°	4055.2	3771.5	3292.6	2936.7	2808.2
40°	3864.4	3555.6	3055.3	2689.6	2555.7
42.5°	3668.7	3339.0	2818.6	2437.1	2308.6
45°	3462.6	3117.2	2576.4	2210.2	2086.6
47.5°	3266.9	2901.2	2344.7	1978.4	1865.3
50°	3050.4	2684.7	2117.8	1761.9	1654.2
52.5°	2838.9	2452.4	1901.3	1561.3	1463.4
55°	2632.8	2230.9	1674.5	1365.5	1267.7
57.5°	2421.7	2009.6	1473.9	1185.2	1102.6
60°	2205.3	1793.1	1262.2	999.9	917.3
62.5°	1994.2	1582.1	1081.8	834.7	793.8
65°	1777.8	1360.1	896.6	721.6	705.8
67.5°	1571.7	1154.0	721.6	633.6	618.3
70°	1355.2	953.4	597.5	546.1	525.4
72.5°	1149.1	767.5	499.6	458.7	448.2
75°	948.0	587.1	412.2	376.1	371.2
77.5°	747.3	417.1	324.7	303.9	293.6
80°	561.5	299.0	247.1	226.9	226.9
82.5°	391.4	201.2	170.0	159.6	159.6
85°	221.4	113.1	97.9	97.9	97.9
87.5°	82.6	41.0	41.0	36.1	36.1
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2

TEST NUMBER: P920619

CATALOG NUMBER: DFN2DIP-SQ4F0-160D120US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.6	1650.0	1693.2	1332.0	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.2	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2941.9	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.8
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.6	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.5	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

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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	12.28	13.14	13.22	14.09	15.31	8.24	9.10	9.18	10.05	11.28
	3H	13.97	14.74	14.91	15.69	16.94	9.44	10.20	10.38	11.16	12.41
	4H	14.58	15.31	15.54	16.27	17.52	9.89	10.61	10.85	11.57	12.83
	6H	15.01	15.68	15.98	16.64	17.91	10.21	10.88	11.18	11.85	13.12
	8H	15.14	15.77	16.12	16.76	18.02	10.30	10.94	11.28	11.92	13.19
	12H	15.20	15.81	16.19	16.78	18.07	10.35	10.95	11.33	11.93	13.22
4H	2H	12.31	13.03	13.27	13.99	15.25	8.85	9.57	9.81	10.53	11.79
	3H	14.14	14.75	15.12	15.74	17.01	10.20	10.80	11.18	11.79	13.06
	4H	14.84	15.39	15.82	16.37	17.67	10.75	11.30	11.73	12.28	13.58
	6H	15.36	15.83	16.36	16.84	18.13	11.17	11.64	12.17	12.65	13.95
	8H	15.54	15.98	16.54	16.98	18.29	11.30	11.74	12.30	12.74	14.05
	12H	15.64	16.04	16.65	17.05	18.37	11.37	11.77	12.38	12.78	14.10
8H	4H	14.81	15.25	15.81	16.25	17.56	11.03	11.48	12.03	12.48	13.78
	6H	15.38	15.75	16.40	16.79	18.09	11.56	11.92	12.58	12.96	14.27
	8H	15.60	15.92	16.63	16.95	18.28	11.75	12.07	12.78	13.10	14.42
	12H	15.74	16.03	16.78	17.05	18.42	11.87	12.15	12.90	13.17	14.54
12H	4H	14.76	15.16	15.78	16.18	17.49	11.04	11.44	12.06	12.46	13.77
	6H	15.36	15.68	16.39	16.71	18.03	11.61	11.93	12.64	12.96	14.28
	8H	15.58	15.86	16.62	16.89	18.26	11.82	12.10	12.85	13.13	14.49

END OF REPORT