

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: P917899

Luminaire Tested: DFN2DIP-SQ4F0-160D160US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917899
REPORT IS A COMBINATION OF REPORTS P901740 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D160US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

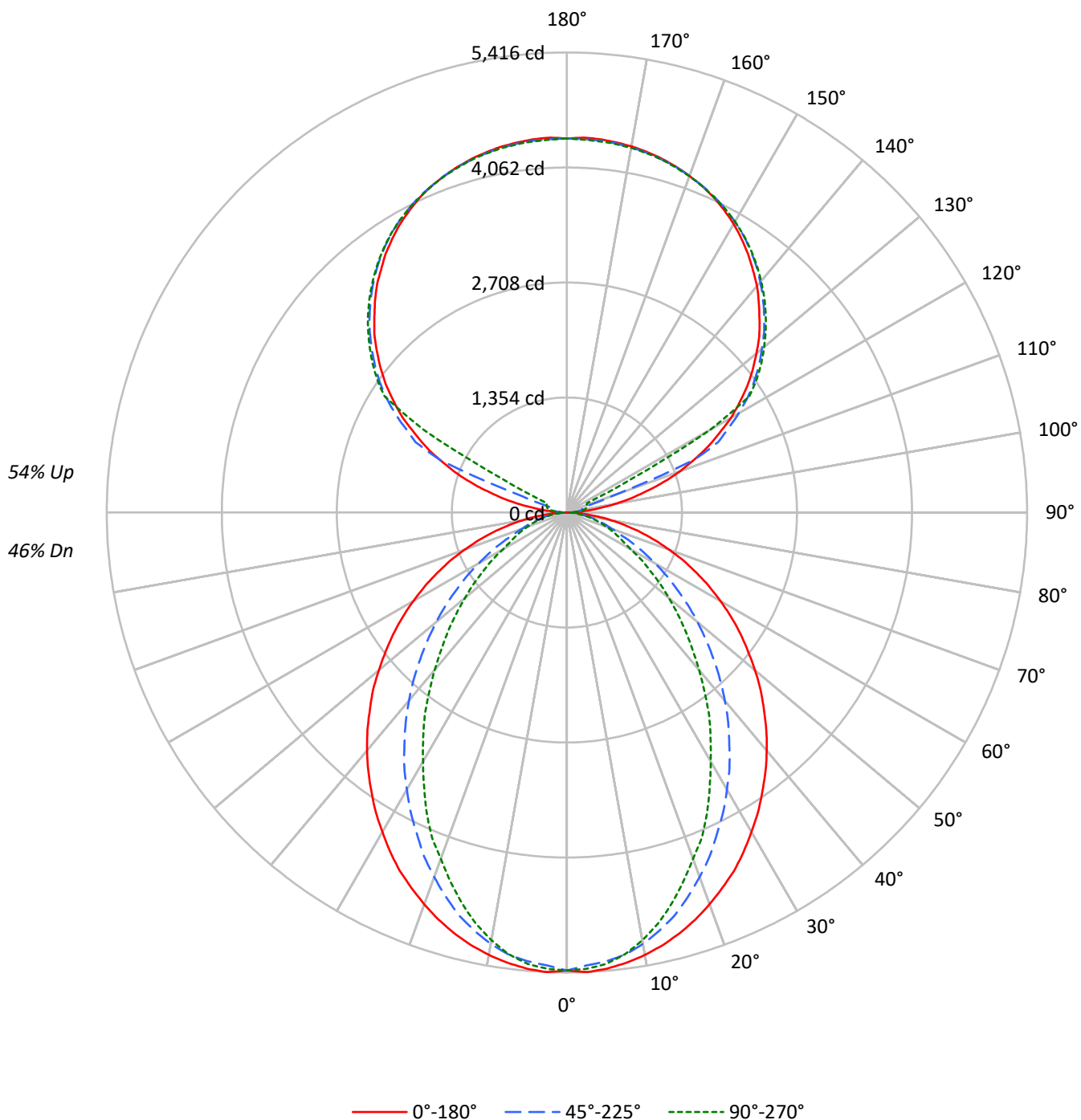
Lumens per Lamp: N/A
Luminaire Lumens: 24002.4 lumens
Efficiency: N/A
Efficacy: 83.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 288.8
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

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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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3783	3783	3783
5°	3789	3724	3748
10°	3751	3651	3627
15°	3700	3531	3439
20°	3631	3366	3209
25°	3561	3180	2986
30°	3467	2989	2704
35°	3375	2784	2455
40°	3282	2572	2170
45°	3173	2337	1912
50°	3060	2099	1659
55°	2942	1845	1417
60°	2806	1579	1167
65°	2650	1308	1052
70°	2460	1056	954
75°	2222	932	870
80°	1877	785	758
85°	1306	528	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3173 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	505.3	2.1
10°-20°	1387.1	5.8
20°-30°	1947.5	8.1
30°-40°	2122.9	8.8
40°-50°	1951.1	8.1
50°-60°	1532.3	6.4
60°-70°	997.4	4.2
70°-80°	513.4	2.1
80°-90°	138.8	0.6
90°-100°	145.1	0.6
100°-110°	541.2	2.3
110°-120°	1435.3	6.0
120°-130°	2380.5	9.9
130°-140°	2528.6	10.5
140°-150°	2350.1	9.8
150°-160°	1889.4	7.9
160°-170°	1217.5	5.1
170°-180°	419.0	1.7
0°-30°	3839.9	16.0
0°-40°	5962.7	24.8
0°-60°	9446.2	39.4
0°-90°	11095.8	46.2
90°-120°	2121.6	8.8
90°-150°	9380.7	39.1
90°-180°	12907.0	53.8
0°-180°	24002.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5391	5391	5391	5391	5391	
5°	5391	5367	5303	5347	5333	511
15°	5128	5074	4908	4816	4767	1445
25°	4655	4498	4176	3977	3903	2141
35°	4011	3762	3333	3025	2918	2510
45°	3279	2952	2440	2093	1976	2532
55°	2493	2112	1586	1293	1200	2228
65°	1683	1288	849	683	668	1669
75°	898	556	390	356	352	949
85°	210	107	93	93	93	241
90°	3	38	64	80	86	22
95°	207	102	124	140	137	245
105°	968	1064	194	229	242	1035
115°	1832	1886	1966	491	261	1803
125°	2590	2631	2692	2714	2724	2310
135°	3205	3256	3284	3316	3310	2476
145°	3718	3714	3768	3791	3775	2325
155°	4093	4065	4103	4122	4097	1886
165°	4313	4294	4304	4326	4304	1219
175°	4412	4390	4396	4418	4386	420
180°	4402	4402	4402	4402	4402	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5391.4	5391.4	5391.4	5391.4	5391.4
2.5°	5415.7	5391.4	5337.5	5386.8	5376.9
5°	5391.4	5367.0	5303.4	5347.4	5332.9
7.5°	5347.4	5318.4	5250.0	5269.2	5244.9
10°	5288.9	5254.8	5157.4	5142.4	5113.4
12.5°	5215.9	5171.9	5039.9	5010.9	4957.1
15°	5127.9	5074.1	4908.4	4815.7	4767.0
17.5°	5025.4	4947.2	4742.3	4635.1	4556.9
20°	4908.4	4810.6	4566.7	4445.1	4337.5
22.5°	4781.6	4669.2	4386.1	4220.5	4147.4
25°	4654.8	4498.4	4176.4	3976.6	3903.2
27.5°	4503.6	4337.5	3981.3	3752.0	3639.7
30°	4342.6	4156.8	3766.4	3518.0	3386.0
32.5°	4186.3	3961.6	3562.0	3269.0	3146.8
35°	4010.8	3761.8	3332.7	3025.2	2917.5
37.5°	3840.0	3571.3	3117.9	2780.8	2659.2
40°	3659.3	3366.9	2893.2	2546.8	2420.0
42.5°	3474.0	3161.8	2669.0	2307.7	2186.1
45°	3278.8	2951.7	2439.7	2092.9	1975.9
47.5°	3093.5	2747.2	2220.2	1873.4	1766.3
50°	2888.5	2542.2	2005.4	1668.4	1566.4
52.5°	2688.2	2322.2	1800.4	1478.5	1385.8
55°	2493.0	2112.5	1585.6	1293.1	1200.4
57.5°	2293.2	1902.9	1395.6	1122.3	1044.1
60°	2088.2	1697.9	1195.2	946.8	868.6
62.5°	1888.4	1498.1	1024.4	790.4	751.6
65°	1683.4	1287.9	849.0	683.3	668.3
67.5°	1488.2	1092.7	683.3	600.0	585.5
70°	1283.3	902.8	565.8	517.1	497.5
72.5°	1088.1	726.8	473.1	434.3	424.4
75°	897.6	556.0	390.3	356.1	351.5
77.5°	707.6	394.9	307.4	287.8	278.0
80°	531.7	283.2	234.0	214.8	214.8
82.5°	370.6	190.5	161.0	151.2	151.2
85°	209.6	107.1	92.7	92.7	92.7
87.5°	78.2	38.8	38.8	34.2	34.2
90°	3.0	38.2	63.5	79.8	85.9
92.5°	79.8	66.9	76.4	82.8	85.9
95°	206.9	101.7	124.1	140.3	137.0
97.5°	372.6	111.6	162.2	172.1	175.1
100°	564.0	127.5	181.6	206.9	213.4
102.5°	774.0	767.9	188.0	222.8	232.6
105°	968.4	1064.1	194.4	229.3	242.1
107.5°	1194.6	1274.1	200.9	235.7	248.5
110°	1411.4	1478.0	557.6	239.0	251.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1615.3	1672.4	1618.3	245.2	254.9
115°	1831.6	1885.7	1965.5	490.6	261.4
117.5°	2019.7	2083.2	2137.7	1681.9	847.3
120°	2230.0	2277.6	2335.1	2373.3	1943.3
122.5°	2408.1	2459.2	2523.1	2542.0	2545.4
125°	2589.7	2631.3	2691.9	2714.2	2723.7
127.5°	2755.4	2800.1	2848.1	2879.9	2882.9
130°	2911.7	2962.7	2997.5	3032.7	3029.6
132.5°	3070.9	3112.5	3147.3	3176.1	3173.1
135°	3204.8	3255.9	3284.3	3316.4	3309.9
137.5°	3344.8	3383.0	3415.1	3446.9	3437.5
140°	3481.7	3507.4	3542.2	3571.0	3555.1
142.5°	3596.7	3619.0	3660.3	3685.6	3669.7
145°	3717.8	3714.3	3768.5	3790.7	3774.9
147.5°	3822.5	3813.1	3867.2	3883.1	3870.5
150°	3924.7	3902.3	3953.5	3972.4	3956.5
152.5°	4010.5	3985.2	4032.9	4052.2	4029.9
155°	4093.4	4065.0	4103.2	4122.1	4096.8
157.5°	4160.4	4135.0	4163.7	4186.1	4160.4
160°	4217.9	4198.5	4217.9	4236.8	4214.4
162.5°	4268.6	4249.7	4265.5	4287.8	4259.1
165°	4313.2	4294.3	4303.7	4326.1	4303.7
167.5°	4348.4	4329.1	4338.9	4361.2	4332.5
170°	4377.1	4357.9	4364.2	4386.5	4357.9
172.5°	4396.0	4377.1	4383.5	4405.9	4377.1
175°	4411.9	4389.6	4396.0	4418.3	4386.5
177.5°	4418.3	4396.0	4399.4	4421.8	4393.0
180°	4402.4	4402.4	4402.4	4402.4	4402.4

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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	11.42	12.22	12.41	13.22	14.55	7.38	8.18	8.38	9.18	10.51
	3H	13.10	13.81	14.10	14.83	16.17	8.57	9.28	9.57	10.29	11.64
	4H	13.71	14.39	14.73	15.40	16.76	9.02	9.69	10.04	10.71	12.06
	6H	14.13	14.76	15.16	15.77	17.14	9.34	9.96	10.37	10.98	12.35
	8H	14.26	14.85	15.30	15.89	17.25	9.43	10.02	10.46	11.05	12.42
	12H	14.32	14.89	15.36	15.91	17.30	9.47	10.03	10.51	11.06	12.45
4H	2H	11.43	12.11	12.46	13.13	14.48	7.97	8.65	9.00	9.67	11.02
	3H	13.27	13.83	14.30	14.87	16.24	9.32	9.89	10.36	10.93	12.30
	4H	13.96	14.47	15.00	15.51	16.90	9.87	10.38	10.91	11.42	12.81
	6H	14.48	14.92	15.53	15.98	17.36	10.29	10.73	11.34	11.79	13.18
	8H	14.65	15.07	15.71	16.12	17.52	10.42	10.83	11.47	11.88	13.28
	12H	14.75	15.12	15.82	16.19	17.60	10.48	10.85	11.55	11.92	13.33
8H	4H	13.93	14.34	14.98	15.39	16.79	10.15	10.56	11.20	11.61	13.02
	6H	14.49	14.84	15.57	15.93	17.33	10.67	11.01	11.74	12.10	13.50
	8H	14.71	15.01	15.80	16.09	17.51	10.86	11.16	11.94	12.24	13.66
	12H	14.85	15.12	15.94	16.19	17.65	10.98	11.24	12.06	12.31	13.77
12H	4H	13.88	14.25	14.94	15.31	16.72	10.15	10.53	11.22	11.59	13.00
	6H	14.47	14.77	15.55	15.85	17.27	10.72	11.02	11.80	12.10	13.51
	8H	14.69	14.96	15.78	16.03	17.49	10.93	11.19	12.01	12.26	13.72

END OF REPORT