

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: P917863

Luminaire Tested: DFN2DIP-SQ4F0-140D160US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917863
REPORT IS A COMBINATION OF REPORTS P901738 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D160US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

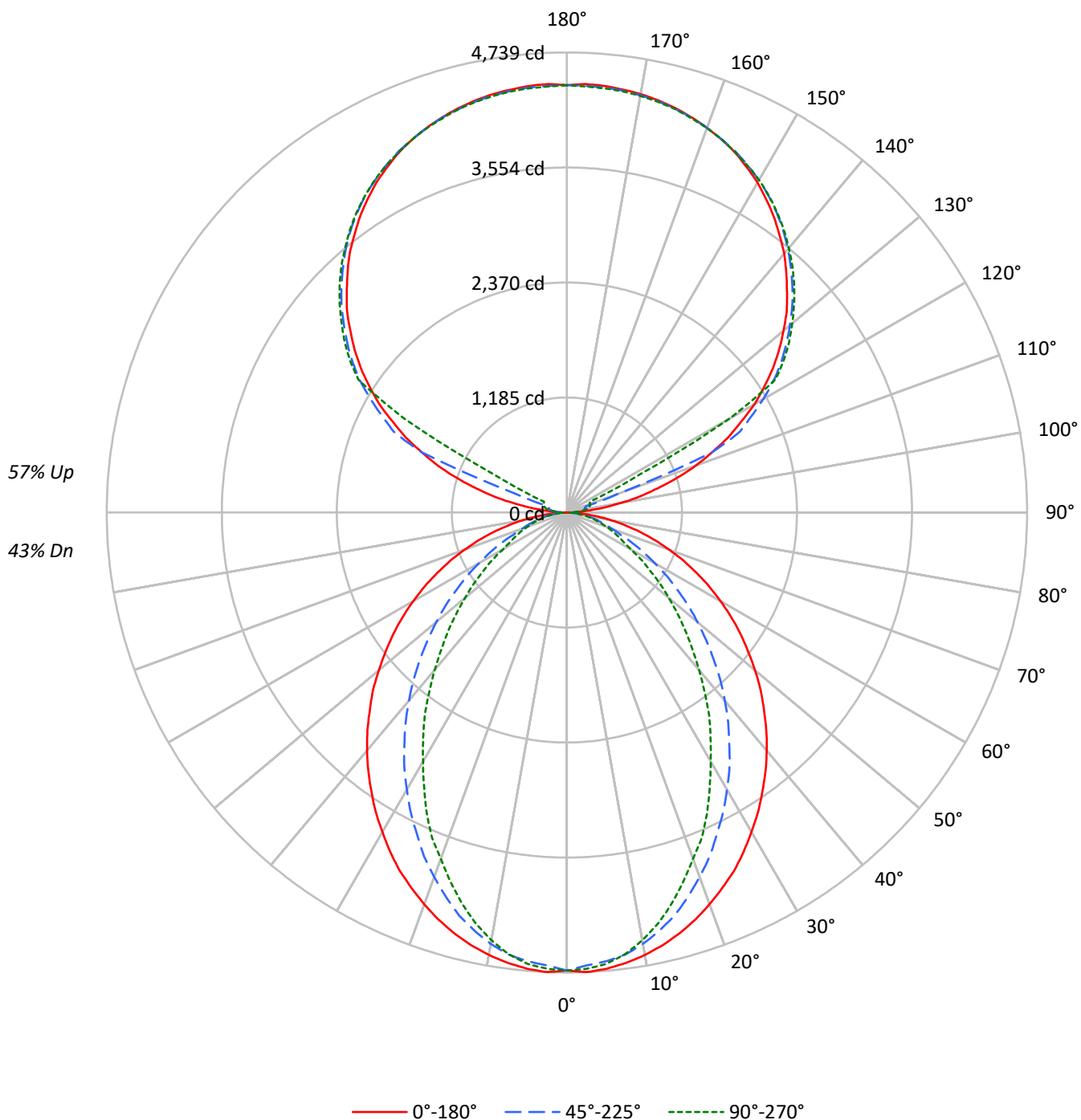
Lumens per Lamp: N/A
Luminaire Lumens: 22616.3 lumens
Efficiency: N/A
Efficacy: 85.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 265.9
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

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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	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°	3310	3310	3310
5°	3315	3258	3279
10°	3283	3195	3174
15°	3237	3090	3009
20°	3177	2945	2808
25°	3116	2782	2613
30°	3034	2616	2366
35°	2953	2436	2148
40°	2871	2251	1899
45°	2776	2045	1673
50°	2677	1836	1452
55°	2575	1614	1240
60°	2456	1381	1021
65°	2319	1145	920
70°	2153	924	835
75°	1944	816	761
80°	1642	687	664
85°	1143	462	505

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2776 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	442.1	2.0
10°-20°	1213.7	5.4
20°-30°	1704.0	7.5
30°-40°	1857.5	8.2
40°-50°	1707.2	7.5
50°-60°	1340.8	5.9
60°-70°	872.7	3.9
70°-80°	449.2	2.0
80°-90°	122.4	0.5
90°-100°	145.1	0.6
100°-110°	541.2	2.4
110°-120°	1435.3	6.3
120°-130°	2380.5	10.5
130°-140°	2528.6	11.2
140°-150°	2350.1	10.4
150°-160°	1889.4	8.4
160°-170°	1217.5	5.4
170°-180°	419.0	1.9
0°-30°	3359.9	14.9
0°-40°	5217.4	23.1
0°-60°	8265.4	36.5
0°-90°	9709.7	42.9
90°-120°	2121.6	9.4
90°-150°	9380.7	41.5
90°-180°	12907.0	57.1
0°-180°	22616.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4718	4718	4718	4718	4718	
5°	4718	4696	4640	4679	4666	447
15°	4487	4440	4295	4214	4171	1264
25°	4073	3936	3654	3480	3415	1873
35°	3510	3292	2916	2647	2553	2197
45°	2869	2583	2135	1831	1729	2216
55°	2181	1848	1387	1132	1050	1949
65°	1473	1127	743	598	585	1460
75°	785	486	342	312	308	831
85°	183	94	81	81	81	211
90°	3	38	64	80	86	21
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°	4717.5	4717.5	4717.5	4717.5	4717.5
2.5°	4738.8	4717.5	4670.4	4713.4	4704.8
5°	4717.5	4696.2	4640.4	4679.0	4666.3
7.5°	4679.0	4653.6	4593.8	4610.6	4589.3
10°	4627.8	4597.9	4512.8	4499.5	4474.2
12.5°	4563.9	4525.4	4409.9	4384.5	4337.5
15°	4486.9	4439.8	4294.8	4213.8	4171.2
17.5°	4397.2	4328.8	4149.5	4055.7	3987.3
20°	4294.8	4209.2	3995.9	3889.5	3795.3
22.5°	4183.9	4085.6	3837.9	3692.9	3629.1
25°	4072.9	3936.1	3654.4	3479.5	3415.2
27.5°	3940.7	3795.3	3483.6	3283.0	3184.7
30°	3799.8	3637.2	3295.7	3078.2	2962.7
32.5°	3663.0	3466.4	3116.7	2860.4	2753.5
35°	3509.5	3291.6	2916.1	2647.0	2552.8
37.5°	3360.0	3124.9	2728.1	2433.3	2326.8
40°	3201.9	2946.0	2531.5	2228.5	2117.6
42.5°	3039.8	2766.6	2335.4	2019.2	1912.8
45°	2869.0	2582.7	2134.8	1831.2	1728.9
47.5°	2706.8	2403.8	1942.7	1639.2	1545.5
50°	2527.4	2224.5	1754.7	1459.9	1370.6
52.5°	2352.1	2031.9	1575.3	1293.6	1212.5
55°	2181.4	1848.4	1387.4	1131.5	1050.3
57.5°	2006.5	1665.0	1221.2	982.0	913.6
60°	1827.2	1485.6	1045.9	828.4	760.0
62.5°	1652.4	1310.8	896.4	691.6	657.7
65°	1473.0	1126.9	742.8	597.9	584.7
67.5°	1302.2	956.2	597.9	525.0	512.3
70°	1122.8	789.9	495.0	452.5	435.3
72.5°	952.1	635.9	414.0	380.0	371.4
75°	785.4	486.5	341.5	311.6	307.5
77.5°	619.2	345.6	269.0	251.8	243.2
80°	465.2	247.8	204.7	188.0	188.0
82.5°	324.3	166.6	140.9	132.2	132.2
85°	183.4	93.8	81.0	81.0	81.0
87.5°	68.4	34.0	34.0	29.9	29.9
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	10.62	11.40	11.64	12.42	13.79	6.58	7.36	7.60	8.38	9.75
	3H	12.30	12.99	13.33	14.03	15.42	7.77	8.46	8.80	9.49	10.89
	4H	12.91	13.56	13.95	14.60	16.00	8.21	8.87	9.26	9.91	11.31
	6H	13.33	13.93	14.38	14.98	16.39	8.53	9.14	9.59	10.18	11.59
	8H	13.46	14.03	14.52	15.09	16.49	8.62	9.20	9.68	10.25	11.66
	12H	13.52	14.06	14.58	15.12	16.55	8.66	9.21	9.73	10.26	11.69
4H	2H	10.63	11.29	11.68	12.33	13.72	7.17	7.83	8.22	8.87	10.27
	3H	12.46	13.01	13.52	14.07	15.48	8.52	9.06	9.58	10.13	11.54
	4H	13.15	13.65	14.22	14.71	16.14	9.07	9.56	10.13	10.62	12.06
	6H	13.67	14.10	14.74	15.18	16.61	9.48	9.91	10.56	10.99	12.42
	8H	13.85	14.25	14.92	15.32	16.76	9.61	10.01	10.68	11.08	12.53
	12H	13.94	14.30	15.03	15.39	16.84	9.67	10.04	10.76	11.12	12.57
8H	4H	13.12	13.52	14.19	14.59	16.03	9.34	9.74	10.42	10.82	12.26
	6H	13.69	14.02	14.78	15.13	16.57	9.86	10.19	10.96	11.31	12.75
	8H	13.91	14.20	15.01	15.29	16.75	10.05	10.34	11.16	11.44	12.90
	12H	14.05	14.30	15.15	15.39	16.89	10.17	10.43	11.28	11.52	13.02
12H	4H	13.07	13.43	14.16	14.52	15.96	9.35	9.71	10.44	10.79	12.24
	6H	13.66	13.95	14.77	15.05	16.51	9.91	10.20	11.01	11.30	12.76
	8H	13.88	14.14	14.99	15.23	16.73	10.12	10.38	11.23	11.47	12.97