

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: P915167

Luminaire Tested: DFN2DIP-SQ4F0-160D140US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915167
REPORT IS A COMBINATION OF REPORTS P901722 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D140US927-RLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

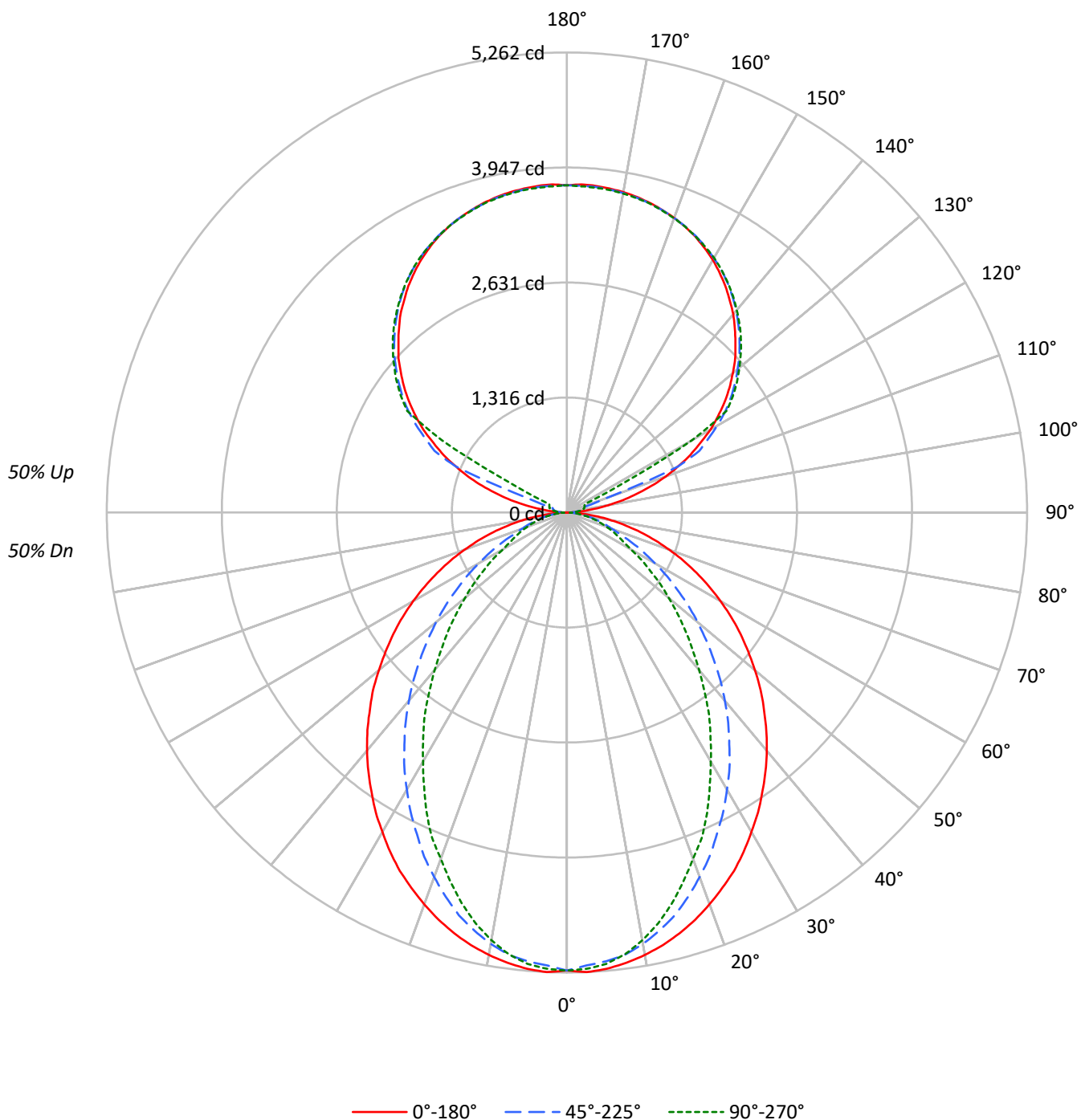
Lumens per Lamp: N/A
Luminaire Lumens: 21753.3 lumens
Efficiency: N/A
Efficacy: 79.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 272.5
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	94	90	87	90	87	84	81	74	71	69	61	60	58	50	49	48
2	90	83	77	72	83	77	71	67	65	61	58	54	52	49	45	43	41
3	82	73	66	60	76	68	62	57	58	53	49	49	45	42	40	38	36
4	75	65	57	52	69	60	54	48	52	47	42	44	40	37	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	33	30	27
6	64	52	44	39	59	49	42	37	42	37	32	36	32	28	30	27	24
7	59	47	40	34	55	44	37	32	38	33	29	33	28	25	27	24	22
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20
9	51	39	32	27	48	37	30	26	32	27	23	28	23	21	23	20	18
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3676	3676	3676
5°	3682	3618	3642
10°	3645	3548	3524
15°	3595	3431	3342
20°	3528	3270	3118
25°	3460	3090	2902
30°	3369	2905	2627
35°	3280	2705	2386
40°	3188	2499	2109
45°	3083	2270	1858
50°	2973	2039	1612
55°	2859	1792	1377
60°	2727	1534	1134
65°	2575	1271	1022
70°	2390	1026	927
75°	2159	906	845
80°	1823	763	737
85°	1269	513	562

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3083 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	491.0	2.3
10°-20°	1347.8	6.2
20°-30°	1892.2	8.7
30°-40°	2062.7	9.5
40°-50°	1895.8	8.7
50°-60°	1488.9	6.8
60°-70°	969.1	4.5
70°-80°	498.8	2.3
80°-90°	134.0	0.6
90°-100°	123.4	0.6
100°-110°	460.1	2.1
110°-120°	1220.2	5.6
120°-130°	2023.8	9.3
130°-140°	2149.8	9.9
140°-150°	1998.0	9.2
150°-160°	1606.3	7.4
160°-170°	1035.1	4.8
170°-180°	356.3	1.6
0°-30°	3731.0	17.2
0°-40°	5793.7	26.6
0°-60°	9178.3	42.2
0°-90°	10780.3	49.6
90°-120°	1803.7	8.3
90°-150°	7975.4	36.7
90°-180°	10973.0	50.4
0°-180°	21753.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5238	5238	5238	5238	5238	
5°	5238	5215	5153	5196	5182	497
15°	4982	4930	4769	4679	4632	1404
25°	4523	4371	4058	3864	3792	2080
35°	3897	3655	3238	2939	2835	2439
45°	3186	2868	2370	2034	1920	2460
55°	2422	2053	1541	1256	1166	2165
65°	1636	1251	825	664	649	1622
75°	872	540	379	346	342	922
85°	204	104	90	90	90	234
90°	2	32	54	68	73	20
95°	176	86	106	119	116	208
105°	823	905	165	195	206	880
115°	1557	1603	1671	417	222	1533
125°	2202	2237	2289	2308	2316	1964
135°	2725	2768	2792	2820	2814	2105
145°	3161	3158	3204	3223	3209	1977
155°	3480	3456	3488	3505	3483	1604
165°	3667	3651	3659	3678	3659	1036
175°	3751	3732	3737	3756	3729	357
180°	3743	3743	3743	3743	3743	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5238.5	5238.5	5238.5	5238.5	5238.5
2.5°	5262.1	5238.5	5186.2	5234.0	5224.4
5°	5238.5	5214.8	5153.0	5195.8	5181.7
7.5°	5195.8	5167.6	5101.2	5119.8	5096.2
10°	5139.0	5105.8	5011.2	4996.6	4968.4
12.5°	5068.0	5025.3	4897.0	4868.8	4816.5
15°	4982.5	4930.2	4769.2	4679.2	4631.9
17.5°	4882.9	4807.0	4607.8	4503.6	4427.7
20°	4769.2	4674.2	4437.2	4319.1	4214.5
22.5°	4646.0	4536.8	4261.7	4100.8	4029.8
25°	4522.8	4370.9	4058.0	3863.9	3792.5
27.5°	4375.9	4214.5	3868.4	3645.6	3536.5
30°	4219.5	4038.9	3659.6	3418.3	3290.0
32.5°	4067.6	3849.3	3461.0	3176.3	3057.6
35°	3897.1	3655.1	3238.2	2939.4	2834.8
37.5°	3731.1	3470.1	3029.5	2702.0	2583.8
40°	3555.5	3271.4	2811.1	2474.6	2351.4
42.5°	3375.5	3072.2	2593.4	2242.3	2124.1
45°	3185.8	2868.0	2370.5	2033.5	1919.9
47.5°	3005.8	2669.3	2157.3	1820.3	1716.2
50°	2806.6	2470.1	1948.5	1621.1	1522.0
52.5°	2612.0	2256.4	1749.4	1436.5	1346.5
55°	2422.3	2052.6	1540.6	1256.4	1166.4
57.5°	2228.2	1849.0	1356.1	1090.4	1014.5
60°	2029.0	1649.8	1161.3	920.0	844.0
62.5°	1834.8	1455.6	995.4	768.0	730.3
65°	1635.7	1251.4	824.9	663.9	649.4
67.5°	1446.0	1061.8	663.9	583.0	568.9
70°	1246.9	877.2	549.8	502.5	483.4
72.5°	1057.2	706.2	459.7	422.0	412.4
75°	872.2	540.2	379.2	346.0	341.5
77.5°	687.5	383.7	298.7	279.6	270.1
80°	516.6	275.1	227.4	208.7	208.7
82.5°	360.1	185.1	156.5	146.9	146.9
85°	203.7	104.1	90.1	90.1	90.1
87.5°	76.0	37.7	37.7	33.2	33.2
90°	2.5	32.5	54.0	67.9	73.0
92.5°	67.9	57.0	65.0	70.4	73.0
95°	175.9	86.5	105.5	119.3	116.5
97.5°	316.8	94.9	138.0	146.3	148.9
100°	479.5	108.4	154.4	175.9	181.4
102.5°	658.0	652.8	159.9	189.4	197.8
105°	823.3	904.7	165.3	194.9	205.8
107.5°	1015.7	1083.1	170.8	200.3	211.3
110°	1199.9	1256.6	474.0	203.3	213.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1373.2	1421.8	1375.9	208.4	216.7
115°	1557.3	1603.2	1671.1	417.2	222.2
117.5°	1717.1	1771.1	1817.4	1429.9	720.4
120°	1895.9	1936.4	1985.3	2017.8	1652.1
122.5°	2047.4	2090.8	2145.1	2161.2	2164.2
125°	2201.8	2237.1	2288.6	2307.5	2315.6
127.5°	2342.6	2380.6	2421.4	2448.4	2451.0
130°	2475.4	2518.9	2548.4	2578.4	2575.8
132.5°	2610.9	2646.2	2675.8	2700.2	2697.7
135°	2724.7	2768.1	2792.2	2819.5	2814.1
137.5°	2843.7	2876.2	2903.5	2930.5	2922.5
140°	2960.1	2982.0	3011.6	3036.0	3022.5
142.5°	3057.9	3076.8	3111.9	3133.5	3119.9
145°	3160.8	3157.9	3203.9	3222.9	3209.4
147.5°	3249.9	3241.8	3287.9	3301.3	3290.7
150°	3336.7	3317.7	3361.1	3377.2	3363.8
152.5°	3409.7	3388.2	3428.7	3445.1	3426.1
155°	3480.1	3456.0	3488.5	3504.6	3483.1
157.5°	3537.1	3515.5	3540.0	3559.0	3537.1
160°	3586.0	3569.6	3586.0	3602.0	3583.1
162.5°	3629.1	3613.0	3626.5	3645.5	3621.1
165°	3667.0	3650.9	3659.0	3677.9	3659.0
167.5°	3697.0	3680.6	3688.9	3707.9	3683.4
170°	3721.4	3705.0	3710.4	3729.4	3705.0
172.5°	3737.4	3721.4	3726.8	3745.8	3721.4
175°	3751.0	3732.0	3737.4	3756.4	3729.4
177.5°	3756.4	3737.4	3740.4	3759.3	3734.9
180°	3742.9	3742.9	3742.9	3742.9	3742.9

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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	11.64	12.47	12.61	13.44	14.73	7.60	8.43	8.57	9.41	10.69
	3H	13.32	14.06	14.30	15.05	16.35	8.79	9.53	9.77	10.52	11.82
	4H	13.93	14.63	14.93	15.62	16.93	9.24	9.94	10.23	10.93	12.24
	6H	14.36	15.00	15.36	16.00	17.32	9.56	10.21	10.57	11.20	12.52
	8H	14.49	15.10	15.50	16.11	17.43	9.65	10.26	10.66	11.28	12.60
	12H	14.55	15.13	15.56	16.14	17.48	9.70	10.28	10.71	11.28	12.63
4H	2H	11.66	12.36	12.66	13.35	14.66	8.20	8.90	9.20	9.89	11.20
	3H	13.49	14.07	14.50	15.09	16.42	9.55	10.13	10.56	11.15	12.47
	4H	14.19	14.72	15.20	15.73	17.08	10.10	10.63	11.11	11.64	12.99
	6H	14.71	15.16	15.73	16.20	17.54	10.52	10.97	11.54	12.01	13.35
	8H	14.88	15.31	15.91	16.34	17.70	10.65	11.07	11.67	12.10	13.46
	12H	14.98	15.37	16.03	16.41	17.77	10.71	11.10	11.76	12.14	13.50
8H	4H	14.16	14.58	15.18	15.61	16.97	10.38	10.81	11.41	11.83	13.19
	6H	14.73	15.08	15.78	16.15	17.50	10.90	11.25	11.95	12.32	13.68
	8H	14.95	15.25	16.00	16.31	17.69	11.09	11.40	12.15	12.46	13.83
	12H	15.09	15.36	16.15	16.41	17.83	11.21	11.48	12.27	12.53	13.95
12H	4H	14.11	14.49	15.15	15.53	16.90	10.39	10.77	11.43	11.81	13.18
	6H	14.70	15.01	15.76	16.07	17.44	10.95	11.26	12.01	12.32	13.69
	8H	14.93	15.20	15.99	16.25	17.67	11.16	11.43	12.22	12.48	13.90