

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: P931214

Luminaire Tested: DFN2DS-SQ4F0-160DS840-RLL

Issue Date: 11/20/2024

Test Information

Test Method: LM-79-2019
Report Number: P931214
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)
Test Lab: INNOVATION CENTER
Issue Date: 11/20/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DS-SQ4F0-160DS840-RLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

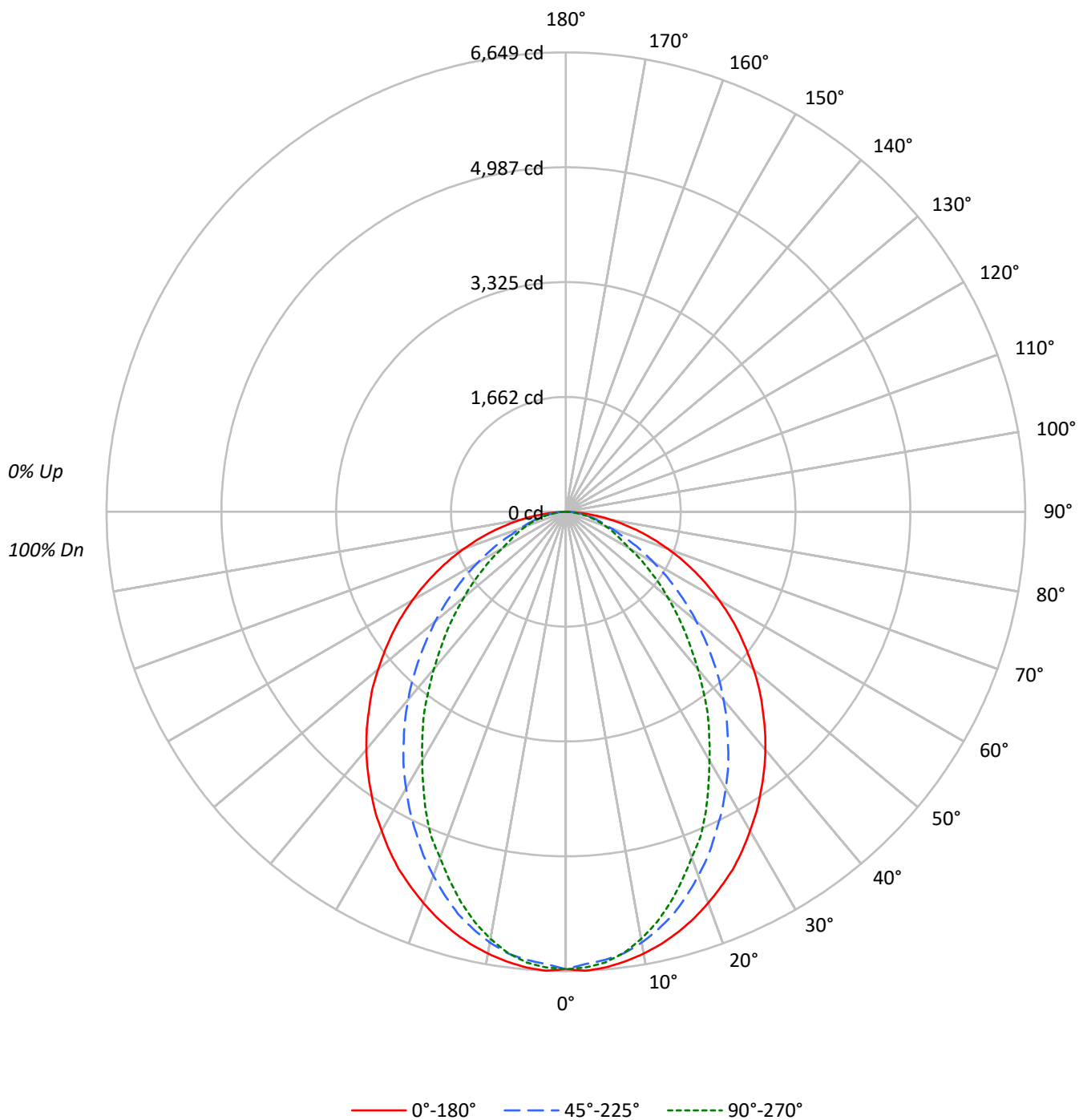
Lumens per Lamp: N/A
Luminaire Lumens: 13613.6 lumens
Efficiency: N/A
Efficacy: 78.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular (W 3.92' x L: 3.92' x H: 0')
CIE Type: Direct

Input Watts (W): 174.6
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
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	110	106	102	98	107	103	100	97	99	96	94		95	93	91		92
2	101	94	87	82	98	92	86	81	88	83	79		85	81	78		82
3	93	83	76	70	90	82	75	69	79	73	68		76	71	67		74
4	86	75	66	60	83	73	66	60	71	64	59		69	63	58		66
5	79	67	59	53	77	66	58	52	64	57	52		62	56	51		60
6	74	61	53	47	72	60	52	46	58	51	46		57	50	46		55
7	68	56	47	42	67	55	47	42	53	46	41		52	46	41		51
8	64	51	43	38	62	51	43	37	49	42	37		48	42	37		47
9	60	47	39	34	59	47	39	34	46	39	34		44	38	34		44
10	56	44	36	31	55	43	36	31	42	36	31		41	35	31		41

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4645	4645	4645
5°	4662	4586	4612
10°	4627	4512	4473
15°	4574	4378	4252
20°	4500	4187	3977
25°	4425	3970	3710
30°	4320	3747	3368
35°	4218	3505	3068
40°	4115	3254	2722
45°	3995	2972	2407
50°	3871	2688	2099
55°	3745	2381	1803
60°	3598	2059	1497
65°	3432	1731	1362
70°	3232	1425	1253
75°	2988	1299	1170
80°	2638	1161	1066
85°	2072	916	916

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3995 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	620.4	4.6
10°-20°	1703.1	12.5
20°-30°	2391.0	17.6
30°-40°	2606.4	19.1
40°-50°	2395.5	17.6
50°-60°	1881.3	13.8
60°-70°	1224.6	9.0
70°-80°	630.3	4.6
80°-90°	160.9	1.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	4714.5	34.6
0°-40°	7320.9	53.8
0°-60°	11597.7	85.2
0°-90°	13613.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	13613.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6619	6619	6619	6619	6619	
5°	6619	6590	6511	6565	6548	628
15°	6296	6230	6026	5913	5853	1774
25°	5715	5523	5128	4882	4792	2628
35°	4924	4619	4092	3714	3582	3082
45°	4026	3624	2995	2570	2426	3109
55°	3061	2594	1947	1588	1474	2735
65°	2067	1581	1042	839	820	2049
75°	1102	683	479	437	432	1166
85°	257	132	114	114	114	309
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6619.4	6619.4	6619.4	6619.4	6619.4
2.5°	6649.2	6619.4	6553.2	6613.7	6601.6
5°	6619.4	6589.5	6511.3	6565.4	6547.5
7.5°	6565.4	6529.7	6445.8	6469.4	6439.5
10°	6493.6	6451.6	6332.1	6313.7	6278.1
12.5°	6403.9	6349.9	6187.9	6152.2	6086.2
15°	6295.9	6229.8	6026.4	5912.6	5852.8
17.5°	6170.1	6074.1	5822.4	5690.8	5594.9
20°	6026.4	5906.3	5606.9	5457.6	5325.4
22.5°	5870.7	5732.7	5385.1	5181.8	5092.1
25°	5715.0	5523.0	5127.7	4882.4	4792.2
27.5°	5529.4	5325.4	4888.1	4606.6	4468.7
30°	5331.7	5103.6	4624.3	4319.3	4157.3
32.5°	5139.8	4864.0	4373.3	4013.6	3863.6
35°	4924.3	4618.6	4091.8	3714.2	3582.1
37.5°	4714.6	4384.8	3828.0	3414.2	3264.9
40°	4492.8	4133.7	3552.1	3126.9	2971.3
42.5°	4265.3	3882.0	3277.0	2833.3	2684.0
45°	4025.6	3624.0	2995.4	2569.6	2425.9
47.5°	3798.1	3373.0	2725.9	2300.1	2168.6
50°	3546.4	3121.2	2462.2	2048.4	1923.2
52.5°	3300.5	2851.1	2210.5	1815.2	1701.4
55°	3060.9	2593.7	1946.7	1587.6	1473.9
57.5°	2815.5	2336.3	1713.5	1377.9	1281.9
60°	2563.9	2084.7	1467.5	1162.5	1066.5
62.5°	2318.5	1839.3	1257.8	970.5	922.8
65°	2066.9	1581.3	1042.3	838.9	820.5
67.5°	1827.2	1341.6	838.9	736.6	718.8
70°	1575.6	1108.4	694.7	634.9	610.8
72.5°	1335.9	892.3	580.9	533.2	521.1
75°	1102.1	682.6	479.2	437.2	431.5
77.5°	868.8	484.9	377.5	353.4	341.3
80°	652.8	347.6	287.3	263.8	263.8
82.5°	455.1	233.9	197.7	185.6	185.6
85°	257.4	131.5	113.8	113.8	113.8
87.5°	96.0	47.6	47.6	41.9	41.9
90°	0.0	0.0	0.0	0.0	0.0

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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	16.57	18.09	16.94	18.41	18.72	12.53	14.05	12.90	14.37	14.68
	3H	18.34	19.70	18.71	20.03	20.39	13.80	15.16	14.17	15.49	15.85
	4H	19.00	20.28	19.40	20.63	21.01	14.30	15.58	14.70	15.93	16.31
	6H	19.49	20.67	19.90	21.04	21.43	14.68	15.86	15.09	16.23	16.62
	8H	19.66	20.78	20.08	21.17	21.57	14.80	15.93	15.23	16.32	16.72
	12H	19.76	20.84	20.19	21.22	21.65	14.88	15.96	15.31	16.34	16.77
4H	2H	16.67	17.95	17.07	18.30	18.68	13.23	14.51	13.63	14.86	15.23
	3H	18.61	19.67	19.02	20.07	20.47	14.67	15.73	15.08	16.13	16.53
	4H	19.36	20.31	19.79	20.73	21.17	15.27	16.23	15.70	16.64	17.08
	6H	19.95	20.78	20.41	21.22	21.68	15.76	16.59	16.21	17.03	17.49
	8H	20.16	20.94	20.63	21.38	21.85	15.92	16.70	16.38	17.14	17.61
	12H	20.32	21.01	20.80	21.49	21.96	16.04	16.73	16.52	17.21	17.68
8H	4H	19.38	20.16	19.84	20.60	21.07	15.62	16.40	16.09	16.84	17.31
	6H	20.02	20.66	20.52	21.15	21.63	16.21	16.85	16.71	17.34	17.82
	8H	20.27	20.85	20.78	21.36	21.84	16.43	17.01	16.94	17.52	18.00
	12H	20.47	20.98	20.98	21.48	22.04	16.61	17.12	17.12	17.61	18.18
12H	4H	19.37	20.06	19.85	20.54	21.01	15.67	16.36	16.15	16.84	17.31
	6H	20.00	20.58	20.51	21.09	21.57	16.27	16.85	16.79	17.36	17.85
	8H	20.28	20.79	20.79	21.29	21.85	16.55	17.06	17.06	17.55	18.11