

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: P931188

Luminaire Tested: DFN2DS-SQ4F0-120DS940-RLL

Issue Date: 11/20/2024

**Test Information**

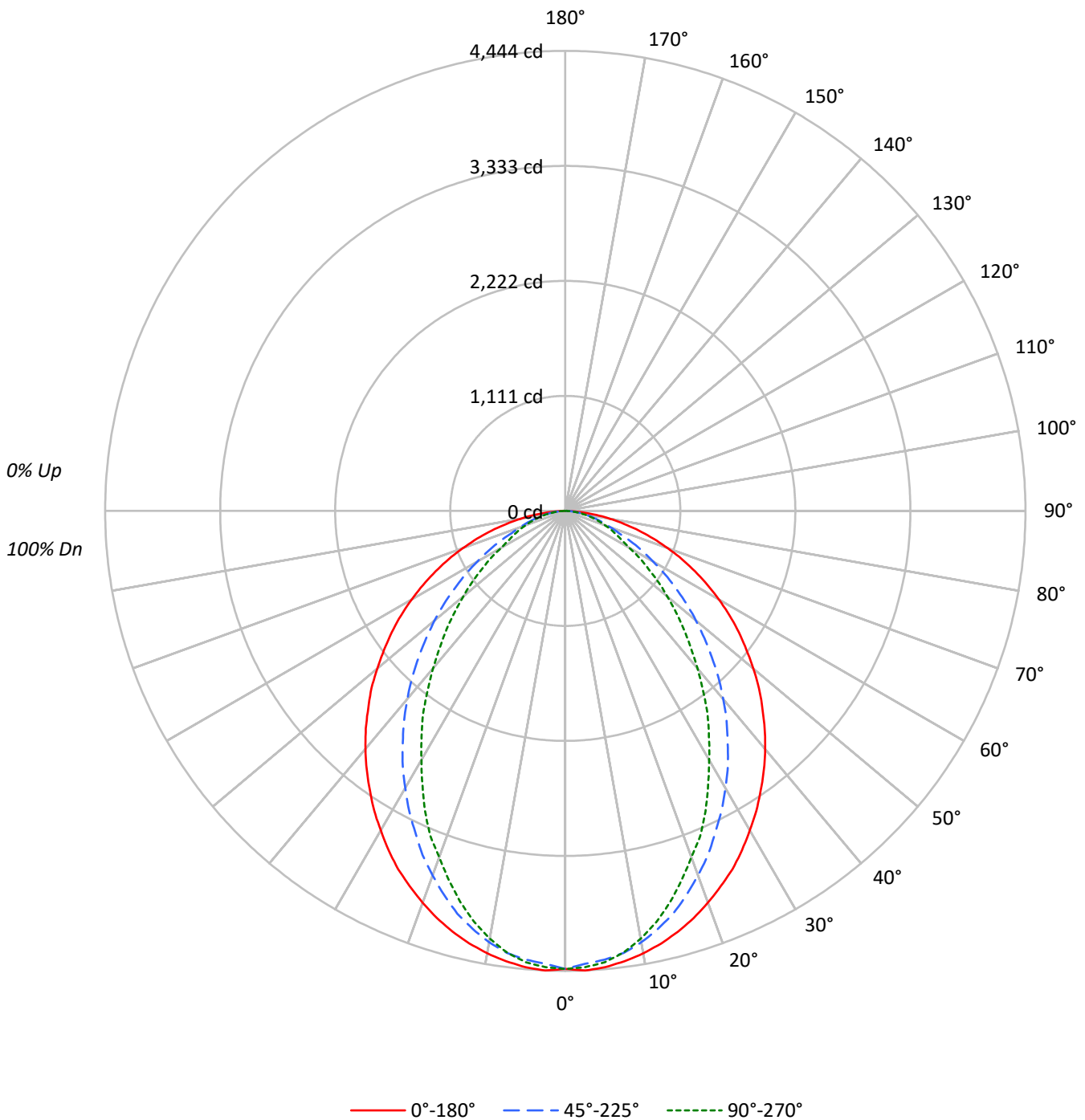
Test Method: LM-79-2019  
Report Number: P931188  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-SQ4F0-120DS940-RLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9098.4 lumens  
Efficiency: N/A  
Efficacy: 72.5 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): 125.5  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	88	88	88	86
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	76	76	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	66	66	66	64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	57	57	57	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	51	51	51	49
6	74	61	53	47	72	60	52	46	58	51	46	57	50	46	55	50	45	45	45	45	43
7	68	56	47	42	67	55	47	42	53	46	41	52	46	41	51	45	41	41	41	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	37	37	37	35
9	60	47	39	34	59	47	39	34	46	39	34	44	38	34	44	38	34	34	34	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	31	31	31	29

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3104	3104	3104
5°	3116	3065	3082
10°	3092	3015	2990
15°	3057	2926	2842
20°	3007	2798	2658
25°	2957	2653	2480
30°	2887	2504	2251
35°	2819	2342	2051
40°	2750	2175	1819
45°	2670	1987	1609
50°	2587	1796	1403
55°	2503	1592	1205
60°	2405	1376	1000
65°	2294	1157	911
70°	2160	953	837
75°	1997	868	782
80°	1763	776	712
85°	1386	612	612

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2670 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	414.6	4.6
10°-20°	1138.2	12.5
20°-30°	1598.0	17.6
30°-40°	1741.9	19.1
40°-50°	1601.0	17.6
50°-60°	1257.3	13.8
60°-70°	818.4	9.0
70°-80°	421.3	4.6
80°-90°	107.5	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°	3150.8	34.6
0°-40°	4892.8	53.8
0°-60°	7751.1	85.2
0°-90°	9098.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9098.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4424	4424	4424	4424	4424	
5°	4424	4404	4352	4388	4376	419
15°	4208	4164	4028	3952	3912	1186
25°	3820	3691	3427	3263	3203	1757
35°	3291	3087	2735	2482	2394	2060
45°	2690	2422	2002	1717	1621	2078
55°	2046	1734	1301	1061	985	1828
65°	1381	1057	697	561	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	206
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4424.0	4424.0	4424.0	4424.0	4424.0
2.5°	4443.9	4424.0	4379.8	4420.1	4412.0
5°	4424.0	4404.0	4351.7	4387.8	4376.0
7.5°	4387.8	4364.0	4308.0	4323.7	4303.7
10°	4339.8	4311.8	4231.9	4219.6	4195.9
12.5°	4279.9	4243.9	4135.5	4111.8	4067.6
15°	4207.7	4163.6	4027.6	3951.6	3911.7
17.5°	4123.6	4059.5	3891.3	3803.4	3739.3
20°	4027.6	3947.4	3747.3	3647.5	3559.1
22.5°	3923.6	3831.4	3599.0	3463.1	3403.2
25°	3819.5	3691.2	3427.0	3263.0	3202.7
27.5°	3695.5	3559.1	3266.9	3078.7	2986.5
30°	3563.4	3410.9	3090.6	2886.7	2778.4
32.5°	3435.1	3250.7	2922.8	2682.4	2582.2
35°	3291.1	3086.8	2734.6	2482.3	2393.9
37.5°	3150.9	2930.5	2558.3	2281.8	2182.0
40°	3002.7	2762.7	2374.1	2089.9	1985.8
42.5°	2850.6	2594.5	2190.1	1893.6	1793.8
45°	2690.5	2422.0	2001.9	1717.4	1621.3
47.5°	2538.4	2254.3	1821.8	1537.3	1449.3
50°	2370.2	2086.0	1645.6	1369.0	1285.4
52.5°	2205.8	1905.5	1477.3	1213.1	1137.1
55°	2045.7	1733.5	1301.1	1061.0	985.0
57.5°	1881.7	1561.4	1145.1	920.9	856.8
60°	1713.5	1393.2	980.8	776.9	712.8
62.5°	1549.6	1229.3	840.6	648.7	616.7
65°	1381.4	1056.8	696.7	560.7	548.4
67.5°	1221.2	896.6	560.7	492.3	480.4
70°	1053.0	740.8	464.3	424.3	408.2
72.5°	892.9	596.4	388.2	356.4	348.3
75°	736.5	456.2	320.3	292.2	288.4
77.5°	580.7	324.1	252.3	236.2	228.1
80°	436.3	232.4	192.0	176.3	176.3
82.5°	304.2	156.3	132.1	124.0	124.0
85°	172.1	88.0	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
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	15.17	16.69	15.54	17.01	17.32	11.13	12.65	11.50	12.97	13.28
	3H	16.94	18.30	17.31	18.63	18.99	12.40	13.76	12.77	14.09	14.45
	4H	17.60	18.88	18.00	19.23	19.61	12.90	14.18	13.30	14.53	14.91
	6H	18.09	19.27	18.50	19.64	20.03	13.28	14.46	13.69	14.83	15.22
	8H	18.26	19.38	18.68	19.77	20.17	13.40	14.53	13.83	14.92	15.32
	12H	18.36	19.44	18.79	19.82	20.25	13.48	14.56	13.91	14.94	15.37
4H	2H	15.27	16.55	15.67	16.90	17.28	11.83	13.11	12.23	13.46	13.83
	3H	17.21	18.27	17.62	18.67	19.07	13.27	14.33	13.68	14.73	15.13
	4H	17.96	18.91	18.39	19.33	19.77	13.87	14.83	14.30	15.24	15.68
	6H	18.55	19.38	19.01	19.82	20.28	14.36	15.19	14.81	15.63	16.09
	8H	18.76	19.54	19.23	19.98	20.45	14.52	15.30	14.98	15.74	16.21
	12H	18.92	19.61	19.40	20.09	20.56	14.64	15.33	15.12	15.81	16.28
8H	4H	17.98	18.76	18.44	19.20	19.67	14.22	15.00	14.69	15.44	15.91
	6H	18.62	19.26	19.12	19.75	20.23	14.81	15.45	15.31	15.94	16.42
	8H	18.87	19.45	19.38	19.96	20.44	15.03	15.61	15.54	16.12	16.60
	12H	19.07	19.58	19.58	20.08	20.64	15.21	15.72	15.72	16.21	16.78
12H	4H	17.97	18.66	18.45	19.14	19.61	14.27	14.96	14.75	15.44	15.91
	6H	18.60	19.18	19.11	19.69	20.17	14.87	15.45	15.39	15.96	16.45
	8H	18.88	19.39	19.39	19.89	20.45	15.15	15.66	15.66	16.15	16.71