

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: P931141

Luminaire Tested: DFN2DS-SQ4F0-100DS840-FLL

Issue Date: 11/20/2024

**Test Information**

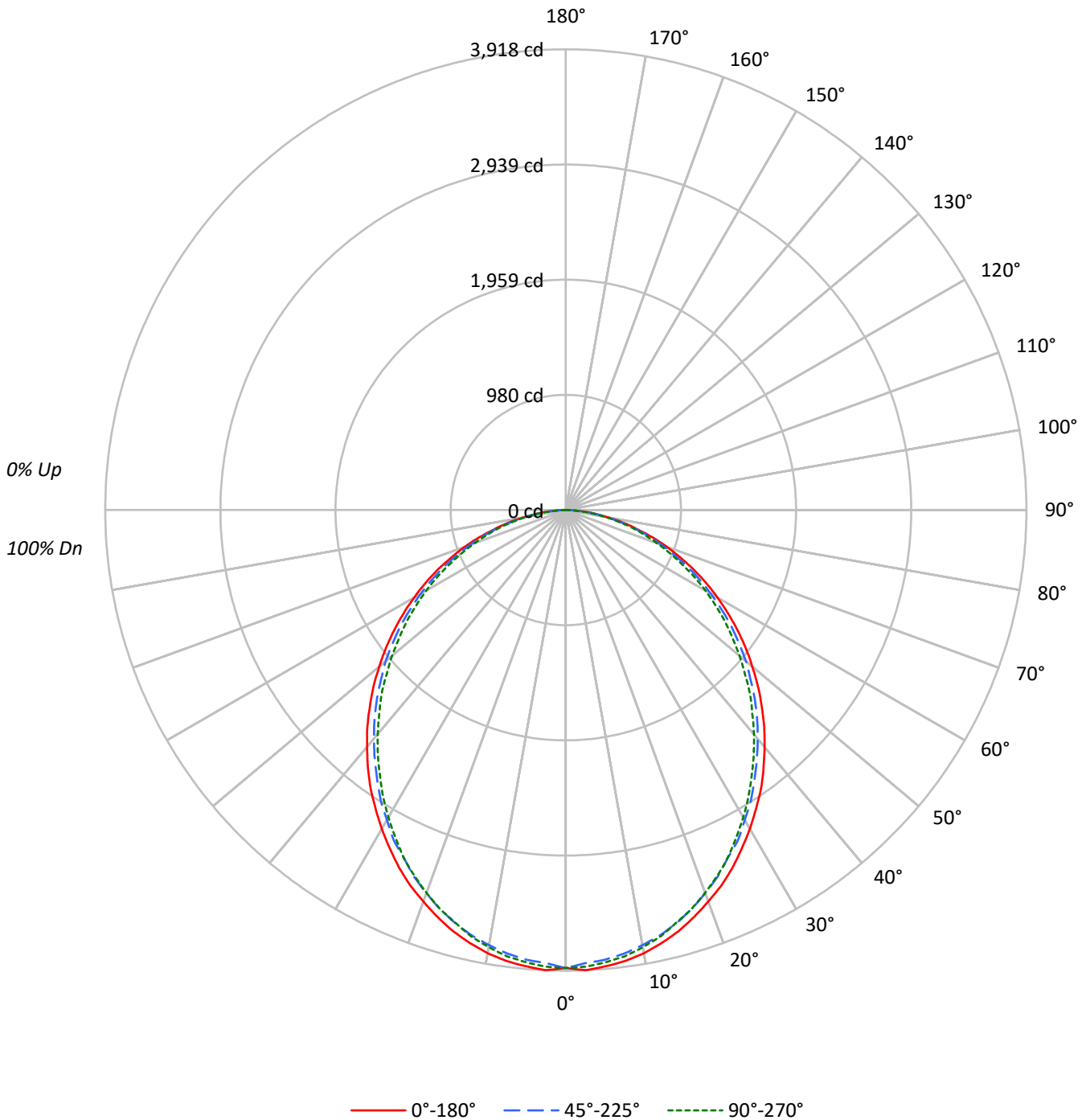
Test Method: LM-79-2019  
Report Number: P931141  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333812)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-SQ4F0-100DS840-FLL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9909.9 lumens  
Efficiency: N/A  
Efficacy: 98.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular (W 3.92' x L: 3.92' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 100.6  
Input Voltage (V):  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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									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	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	100																												
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84																												
2	99	91	85	79	97	89	83	78	86	81	76	83	78	74	80	76	73	71																												
3	91	80	72	66	88	79	71	65	76	69	64	73	68	63	71	66	62	60																												
4	83	71	63	56	81	70	62	56	68	61	55	65	59	54	63	58	54	51																												
5	77	64	55	49	75	63	55	48	61	53	48	59	52	47	57	51	47	45																												
6	71	58	49	43	69	57	48	42	55	48	42	53	47	42	52	46	41	39																												
7	66	52	44	38	64	52	43	38	50	43	37	49	42	37	47	41	37	35																												
8	61	48	40	34	60	47	39	34	46	39	33	45	38	33	44	38	33	31																												
9	57	44	36	30	56	43	36	30	42	35	30	41	35	30	40	34	30	28																												
10	54	41	33	28	53	40	33	28	39	32	27	38	32	27	37	32	27	26																												

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

	0°	45°	90°
0°	2733	2733	2733
5°	2743	2704	2720
10°	2727	2677	2690
15°	2693	2642	2639
20°	2645	2590	2587
25°	2598	2526	2526
30°	2537	2467	2446
35°	2480	2397	2361
40°	2408	2326	2281
45°	2338	2256	2200
50°	2261	2183	2106
55°	2181	2099	2021
60°	2092	1997	1924
65°	1996	1897	1810
70°	1875	1775	1691
75°	1705	1634	1594
80°	1514	1468	1392
85°	1235	1177	1055

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2338 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	366.6	3.7
10°-20°	1031.5	10.4
20°-30°	1515.8	15.3
30°-40°	1760.5	17.8
40°-50°	1758.4	17.7
50°-60°	1533.2	15.5
60°-70°	1133.4	11.4
70°-80°	641.3	6.5
80°-90°	169.3	1.7
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°	2913.9	29.4
0°-40°	4674.4	47.2
0°-60°	7966.0	80.4
0°-90°	9909.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9909.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3895	3895	3895	3895	3895	
5°	3895	3880	3839	3869	3862	370
15°	3708	3686	3637	3652	3633	1044
25°	3356	3326	3262	3270	3262	1544
35°	2895	2858	2798	2775	2756	1808
45°	2356	2330	2273	2232	2217	1818
55°	1783	1760	1715	1670	1652	1594
65°	1202	1180	1142	1109	1090	1189
75°	629	622	603	581	588	672
85°	153	150	146	135	131	180
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3895.0	3895.0	3895.0	3895.0	3895.0
2.5°	3917.6	3898.9	3857.6	3895.0	3887.8
5°	3895.0	3880.3	3838.9	3868.8	3861.6
7.5°	3868.8	3846.4	3805.1	3835.3	3827.8
10°	3827.8	3801.6	3756.7	3786.5	3775.4
12.5°	3771.4	3749.1	3704.2	3722.9	3715.3
15°	3707.8	3685.6	3636.6	3651.7	3633.1
17.5°	3629.1	3606.9	3558.0	3576.7	3558.0
20°	3542.8	3520.6	3468.2	3479.3	3464.6
22.5°	3457.1	3423.3	3374.4	3374.4	3366.9
25°	3355.8	3325.9	3262.4	3269.5	3262.4
27.5°	3243.2	3217.0	3168.6	3157.5	3138.7
30°	3131.2	3101.0	3044.9	3033.8	3018.7
32.5°	3011.2	2989.0	2928.9	2906.3	2891.2
35°	2895.2	2857.9	2797.8	2775.2	2756.5
37.5°	2764.1	2730.2	2670.3	2644.0	2625.3
40°	2629.3	2599.1	2539.1	2505.8	2490.7
42.5°	2498.2	2468.0	2408.4	2370.7	2348.4
45°	2356.0	2329.7	2273.3	2232.3	2217.3
47.5°	2217.3	2191.1	2131.0	2089.7	2067.5
50°	2071.1	2052.4	1999.9	1947.4	1928.8
52.5°	1928.8	1902.6	1854.1	1812.8	1786.6
55°	1783.0	1760.4	1715.4	1670.5	1651.9
57.5°	1636.7	1618.0	1569.2	1524.3	1509.2
60°	1490.5	1475.8	1423.3	1382.0	1370.9
62.5°	1348.2	1322.0	1284.7	1247.3	1232.2
65°	1202.4	1179.8	1142.4	1108.6	1090.0
67.5°	1052.7	1033.5	1000.2	974.0	958.9
70°	913.9	898.8	865.1	838.8	824.1
72.5°	771.7	756.6	737.9	711.7	700.5
75°	629.0	621.9	602.8	580.6	588.1
77.5°	501.9	486.8	479.2	468.1	457.0
80°	374.7	370.8	363.2	352.1	344.5
82.5°	254.8	254.8	251.2	236.0	236.0
85°	153.4	149.8	146.2	134.7	131.1
87.5°	67.6	60.0	52.5	41.3	37.3
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	14.78	16.39	15.14	16.70	17.01	14.33	15.94	14.70	16.26	16.57
	3H	16.53	17.98	16.90	18.31	18.67	16.03	17.49	16.41	17.82	18.18
	4H	17.17	18.54	17.57	18.89	19.26	16.68	18.05	17.08	18.39	18.77
	6H	17.64	18.91	18.05	19.27	19.67	17.14	18.41	17.55	18.77	19.16
	8H	17.78	19.00	18.21	19.38	19.78	17.28	18.49	17.71	18.88	19.28
	12H	17.87	19.03	18.30	19.42	19.85	17.36	18.52	17.79	18.90	19.33
4H	2H	15.34	16.71	15.73	17.05	17.43	14.98	16.35	15.38	16.70	17.08
	3H	17.31	18.46	17.72	18.86	19.26	16.90	18.05	17.31	18.45	18.85
	4H	18.09	19.12	18.52	19.54	19.97	17.66	18.70	18.10	19.11	19.55
	6H	18.68	19.59	19.14	20.03	20.49	18.25	19.16	18.71	19.60	20.05
	8H	18.87	19.72	19.33	20.16	20.63	18.44	19.28	18.90	19.72	20.19
	12H	19.01	19.77	19.49	20.24	20.71	18.55	19.31	19.03	19.79	20.26
8H	4H	18.36	19.21	18.82	19.65	20.12	17.99	18.83	18.45	19.28	19.74
	6H	19.08	19.78	19.57	20.27	20.74	18.69	19.40	19.19	19.89	20.36
	8H	19.33	19.97	19.84	20.47	20.96	18.94	19.57	19.45	20.08	20.57
	12H	19.53	20.09	20.04	20.58	21.14	19.12	19.68	19.63	20.17	20.73
12H	4H	18.39	19.15	18.87	19.62	20.09	18.02	18.78	18.50	19.26	19.73
	6H	19.12	19.75	19.63	20.26	20.75	18.75	19.38	19.26	19.89	20.38
	8H	19.43	19.99	19.94	20.48	21.04	19.06	19.61	19.56	20.11	20.67