

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: P931222

Luminaire Tested: DFN2DS-SQ4F0-160DS935-RLL

Issue Date: 11/20/2024

**Test Information**

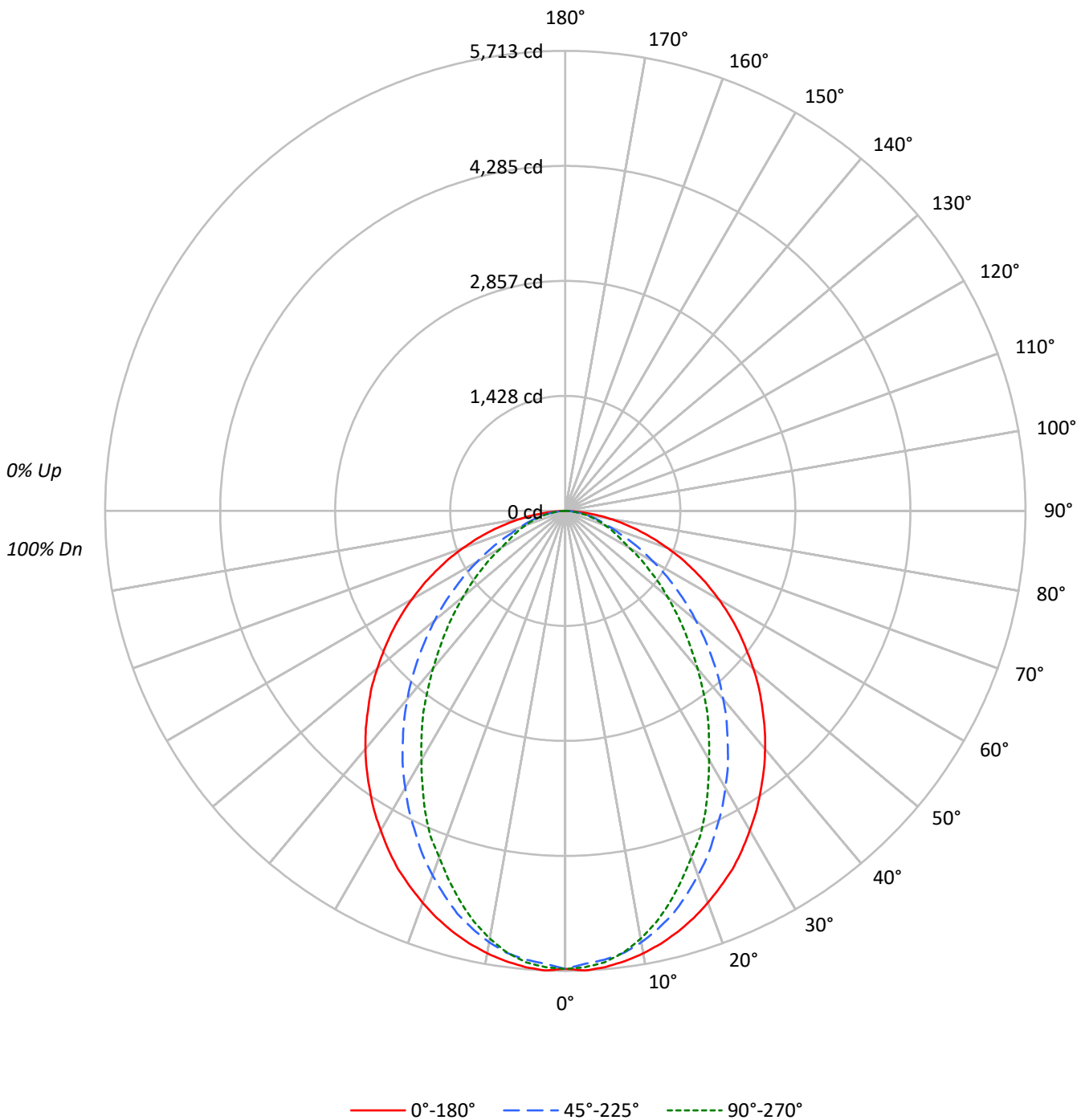
Test Method: LM-79-2019  
Report Number: P931222  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-SQ4F0-160DS935-RLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11696.0 lumens  
Efficiency: N/A  
Efficacy: 67.0 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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CATALOG NUMBER: DFN2DS-SQ4F0-160DS935-RLL

### 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°	3990	3990	3990
5°	4006	3940	3962
10°	3975	3876	3843
15°	3929	3761	3653
20°	3866	3597	3416
25°	3801	3411	3188
30°	3711	3219	2894
35°	3624	3011	2636
40°	3536	2795	2338
45°	3432	2554	2068
50°	3326	2309	1804
55°	3217	2046	1549
60°	3091	1769	1286
65°	2948	1487	1170
70°	2777	1224	1077
75°	2567	1116	1005
80°	2266	997	916
85°	1780	787	787

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3432 cd/sqm



TEST NUMBER: P931222

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	533.0	4.6
10°-20°	1463.2	12.5
20°-30°	2054.2	17.6
30°-40°	2239.2	19.1
40°-50°	2058.1	17.6
50°-60°	1616.3	13.8
60°-70°	1052.1	9.0
70°-80°	541.6	4.6
80°-90°	138.3	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°	4050.4	34.6
0°-40°	6289.6	53.8
0°-60°	9964.1	85.2
0°-90°	11696.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	11696.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5687	5687	5687	5687	5687	
5°	5687	5661	5594	5641	5625	539
15°	5409	5352	5178	5080	5028	1524
25°	4910	4745	4405	4195	4117	2258
35°	4231	3968	3515	3191	3078	2648
45°	3459	3114	2574	2208	2084	2671
55°	2630	2228	1672	1364	1266	2350
65°	1776	1358	896	721	705	1760
75°	947	586	412	376	371	1001
85°	221	113	98	98	98	265
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5687.0	5687.0	5687.0	5687.0	5687.0
2.5°	5712.6	5687.0	5630.2	5682.1	5671.7
5°	5687.0	5661.3	5594.1	5640.6	5625.3
7.5°	5640.6	5610.0	5537.9	5558.1	5532.5
10°	5578.9	5542.9	5440.2	5424.4	5393.7
12.5°	5501.8	5455.5	5316.3	5285.6	5228.9
15°	5409.1	5352.3	5177.5	5079.8	5028.4
17.5°	5301.0	5218.5	5002.3	4889.2	4806.8
20°	5177.5	5074.3	4817.1	4688.8	4575.3
22.5°	5043.7	4925.2	4626.5	4451.9	4374.8
25°	4910.0	4745.0	4405.4	4194.6	4117.2
27.5°	4750.6	4575.3	4199.6	3957.7	3839.2
30°	4580.7	4384.7	3972.9	3710.9	3571.7
32.5°	4415.8	4178.8	3757.3	3448.3	3319.3
35°	4230.7	3968.0	3515.4	3191.0	3077.5
37.5°	4050.5	3767.1	3288.8	2933.3	2805.0
40°	3859.9	3551.5	3051.8	2686.5	2552.7
42.5°	3664.5	3335.2	2815.4	2434.2	2305.9
45°	3458.6	3113.5	2573.5	2207.6	2084.2
47.5°	3263.1	2897.9	2342.0	1976.1	1863.1
50°	3046.9	2681.6	2115.3	1759.9	1652.3
52.5°	2835.6	2449.5	1899.1	1559.5	1461.7
55°	2629.7	2228.3	1672.5	1364.0	1266.3
57.5°	2418.9	2007.2	1472.1	1183.8	1101.3
60°	2202.7	1791.0	1260.8	998.7	916.2
62.5°	1991.9	1580.2	1080.6	833.8	792.8
65°	1775.7	1358.5	895.5	720.8	704.9
67.5°	1569.8	1152.7	720.8	632.9	617.6
70°	1353.6	952.3	596.8	545.5	524.8
72.5°	1147.8	766.6	499.1	458.1	447.7
75°	946.9	586.4	411.7	375.6	370.7
77.5°	746.4	416.6	324.3	303.6	293.3
80°	560.8	298.7	246.8	226.6	226.6
82.5°	391.0	201.0	169.8	159.4	159.4
85°	221.1	113.0	97.8	97.8	97.8
87.5°	82.5	40.9	40.9	36.0	36.0
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	16.04	17.56	16.41	17.88	18.19	12.00	13.53	12.37	13.84	14.15
	3H	17.81	19.17	18.19	19.50	19.86	13.27	14.63	13.65	14.96	15.32
	4H	18.47	19.76	18.87	20.10	20.48	13.77	15.05	14.17	15.40	15.78
	6H	18.96	20.15	19.38	20.51	20.90	14.15	15.33	14.56	15.70	16.09
	8H	19.13	20.26	19.56	20.64	21.05	14.28	15.40	14.70	15.79	16.19
	12H	19.23	20.31	19.66	20.69	21.12	14.36	15.44	14.79	15.82	16.25
4H	2H	16.15	17.43	16.55	17.78	18.15	12.70	13.98	13.10	14.33	14.71
	3H	18.08	19.14	18.49	19.54	19.94	14.14	15.20	14.55	15.60	16.01
	4H	18.83	19.79	19.26	20.20	20.64	14.74	15.70	15.17	16.11	16.55
	6H	19.42	20.25	19.88	20.70	21.16	15.23	16.06	15.69	16.50	16.96
	8H	19.64	20.41	20.10	20.86	21.32	15.39	16.17	15.85	16.61	17.08
	12H	19.79	20.48	20.27	20.96	21.43	15.51	16.20	15.99	16.68	17.15
8H	4H	18.85	19.63	19.32	20.08	20.54	15.10	15.87	15.56	16.32	16.78
	6H	19.49	20.13	19.99	20.62	21.10	15.68	16.32	16.18	16.82	17.29
	8H	19.74	20.32	20.26	20.83	21.32	15.90	16.48	16.42	16.99	17.48
	12H	19.95	20.46	20.46	20.95	21.51	16.08	16.59	16.59	17.08	17.65
12H	4H	18.84	19.53	19.32	20.01	20.48	15.14	15.83	15.62	16.31	16.78
	6H	19.47	20.05	19.99	20.56	21.05	15.75	16.32	16.26	16.83	17.32
	8H	19.76	20.27	20.27	20.76	21.32	16.02	16.53	16.53	17.02	17.58