

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: P931088

Luminaire Tested: DFN2DS-SQ4F0-070DS840-RLL

Issue Date: 11/20/2024

**Test Information**

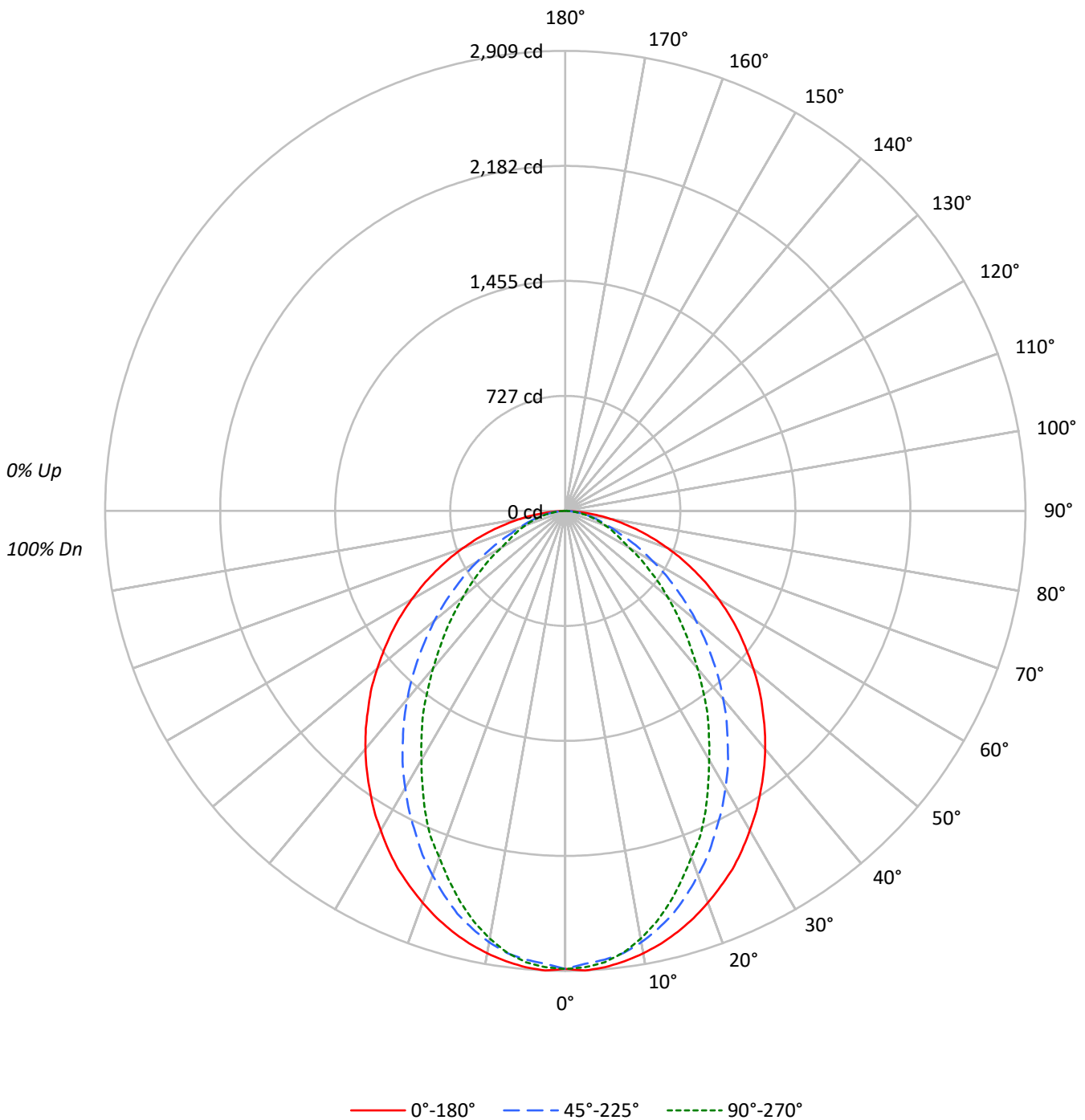
Test Method: LM-79-2019  
Report Number: P931088  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-SQ4F0-070DS840-RLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5955.9 lumens  
Efficiency: N/A  
Efficacy: 86.1 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): 69.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9967  
Total Harmonic Distortion (THDi): 0.063  
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°	2032	2032	2032
5°	2040	2007	2018
10°	2024	1974	1957
15°	2001	1915	1860
20°	1969	1832	1740
25°	1936	1737	1623
30°	1890	1639	1474
35°	1845	1533	1342
40°	1800	1424	1191
45°	1748	1300	1053
50°	1694	1176	918
55°	1638	1042	789
60°	1574	901	655
65°	1501	757	596
70°	1414	623	548
75°	1307	568	512
80°	1154	508	466
85°	907	400	400

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1748 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	271.4	4.6
10°-20°	745.1	12.5
20°-30°	1046.1	17.6
30°-40°	1140.3	19.1
40°-50°	1048.1	17.6
50°-60°	823.1	13.8
60°-70°	535.7	9.0
70°-80°	275.8	4.6
80°-90°	70.4	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°	2062.6	34.6
0°-40°	3202.9	53.8
0°-60°	5074.0	85.2
0°-90°	5955.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5955.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2896	2896	2896	2896	2896	
5°	2896	2883	2849	2872	2865	275
15°	2754	2726	2636	2587	2561	776
25°	2500	2416	2243	2136	2097	1150
35°	2154	2021	1790	1625	1567	1348
45°	1761	1586	1310	1124	1061	1360
55°	1339	1135	852	695	645	1197
65°	904	692	456	367	359	896
75°	482	299	210	191	189	510
85°	113	58	50	50	50	135
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2896.0	2896.0	2896.0	2896.0	2896.0
2.5°	2909.0	2896.0	2867.1	2893.5	2888.2
5°	2896.0	2882.9	2848.7	2872.4	2864.6
7.5°	2872.4	2856.8	2820.1	2830.3	2817.3
10°	2840.9	2822.6	2770.3	2762.3	2746.6
12.5°	2801.7	2778.1	2707.2	2691.6	2662.7
15°	2754.5	2725.5	2636.5	2586.8	2560.7
17.5°	2699.4	2657.5	2547.3	2489.7	2447.7
20°	2636.5	2584.0	2453.1	2387.7	2329.8
22.5°	2568.5	2508.1	2356.0	2267.0	2227.8
25°	2500.3	2416.3	2243.3	2136.0	2096.6
27.5°	2419.1	2329.8	2138.5	2015.4	1955.1
30°	2332.6	2232.8	2023.1	1889.7	1818.8
32.5°	2248.6	2128.0	1913.3	1756.0	1690.3
35°	2154.4	2020.6	1790.2	1625.0	1567.2
37.5°	2062.7	1918.3	1674.8	1493.7	1428.4
40°	1965.6	1808.5	1554.1	1368.1	1299.9
42.5°	1866.1	1698.4	1433.6	1239.5	1174.3
45°	1761.3	1585.5	1310.5	1124.2	1061.4
47.5°	1661.7	1475.7	1192.6	1006.3	948.7
50°	1551.5	1365.6	1077.2	896.2	841.4
52.5°	1443.9	1247.3	967.1	794.1	744.3
55°	1339.1	1134.7	851.7	694.6	644.8
57.5°	1231.8	1022.1	749.6	602.8	560.9
60°	1121.7	912.0	642.0	508.6	466.6
62.5°	1014.3	804.7	550.2	424.6	403.7
65°	904.2	691.8	456.1	367.1	359.0
67.5°	799.4	587.0	367.1	322.2	314.5
70°	689.3	484.9	303.9	277.8	267.2
72.5°	584.5	390.4	254.2	233.3	228.0
75°	482.2	298.6	209.6	191.3	188.8
77.5°	380.1	212.1	165.2	154.6	149.3
80°	285.6	152.1	125.7	115.4	115.4
82.5°	199.1	102.3	86.5	81.2	81.2
85°	112.6	57.6	49.7	49.7	49.7
87.5°	41.9	20.8	20.8	18.3	18.3
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	13.70	15.22	14.06	15.53	15.85	9.66	11.18	10.02	11.49	11.81
	3H	15.46	16.83	15.84	17.16	17.52	10.92	12.29	11.30	12.62	12.98
	4H	16.13	17.41	16.53	17.76	18.14	11.43	12.71	11.83	13.05	13.43
	6H	16.62	17.80	17.03	18.17	18.56	11.81	12.99	12.22	13.36	13.75
	8H	16.78	17.91	17.21	18.30	18.70	11.93	13.06	12.36	13.45	13.85
	12H	16.89	17.97	17.32	18.35	18.78	12.01	13.09	12.44	13.47	13.90
4H	2H	13.80	15.08	14.20	15.43	15.81	10.35	11.64	10.75	11.98	12.36
	3H	15.74	16.80	16.15	17.20	17.60	11.80	12.86	12.21	13.26	13.66
	4H	16.48	17.44	16.92	17.86	18.30	12.40	13.35	12.83	13.77	14.21
	6H	17.08	17.91	17.53	18.35	18.81	12.89	13.72	13.34	14.16	14.62
	8H	17.29	18.07	17.75	18.51	18.98	13.05	13.82	13.51	14.27	14.74
	12H	17.44	18.14	17.93	18.62	19.09	13.16	13.86	13.65	14.34	14.81
8H	4H	16.51	17.29	16.97	17.73	18.20	12.75	13.53	13.21	13.97	14.44
	6H	17.15	17.79	17.64	18.28	18.76	13.34	13.98	13.83	14.47	14.95
	8H	17.40	17.97	17.91	18.48	18.97	13.56	14.13	14.07	14.64	15.13
	12H	17.60	18.11	18.11	18.60	19.17	13.74	14.25	14.25	14.74	15.30
12H	4H	16.49	17.19	16.98	17.67	18.14	12.79	13.49	13.28	13.97	14.44
	6H	17.13	17.70	17.64	18.21	18.70	13.40	13.98	13.91	14.49	14.98
	8H	17.41	17.92	17.92	18.41	18.98	13.67	14.18	14.18	14.68	15.24