

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: P930374

Luminaire Tested: DFN2DS-HX4F0-100DS930-RLL

Issue Date: 11/20/2024

**Test Information**

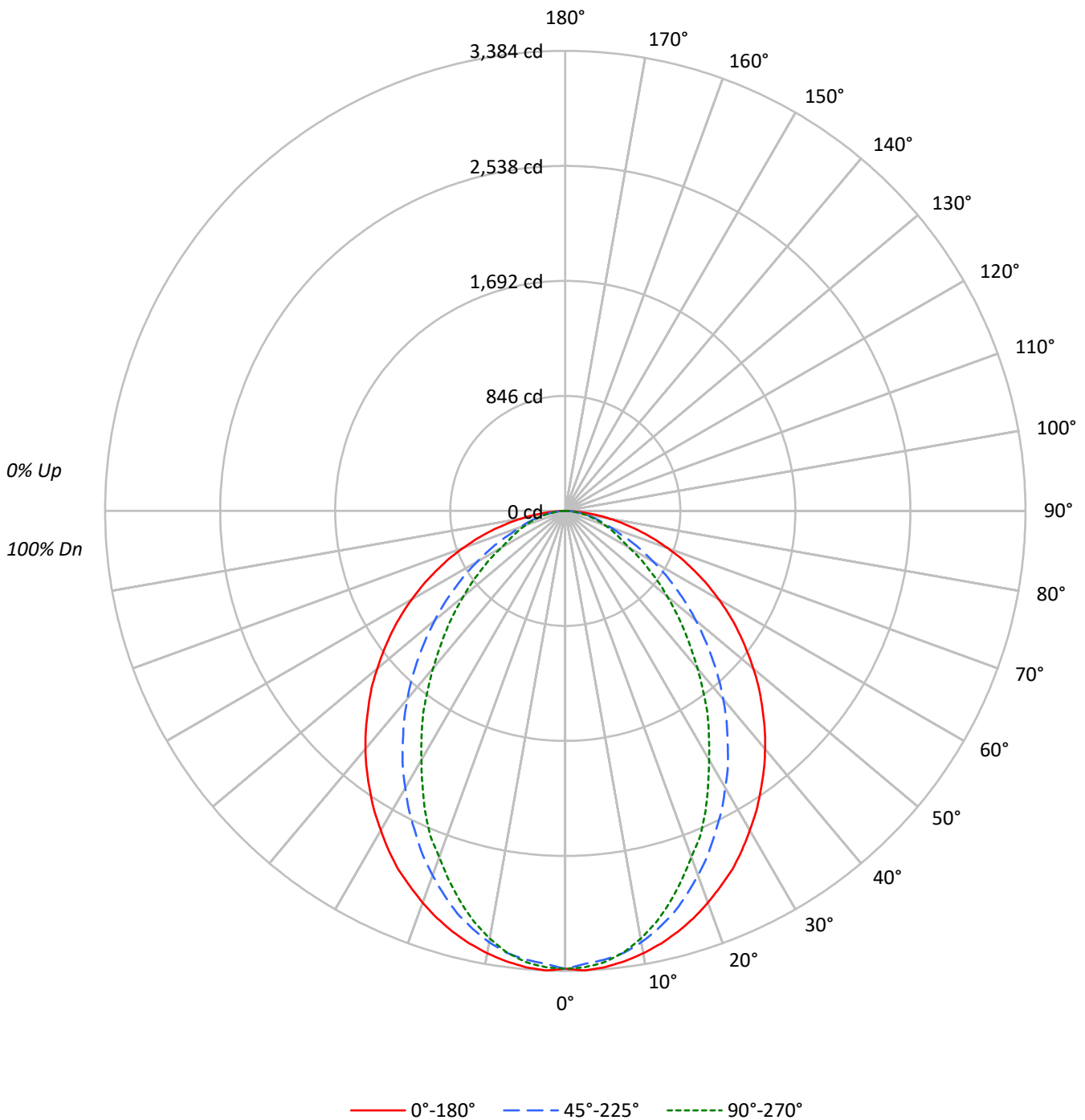
Test Method: LM-79-2019  
Report Number: P930374  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P333882)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/20/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DS-HX4F0-100DS930-RLL  
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6927.5 lumens  
Efficiency: N/A  
Efficacy: 66.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular (W 4.09' x L: 3.54' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 104.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
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°	2505	2505	2505
5°	2514	2473	2487
10°	2495	2433	2412
15°	2466	2361	2293
20°	2427	2258	2144
25°	2386	2141	2001
30°	2329	2020	1816
35°	2275	1890	1655
40°	2219	1755	1468
45°	2154	1603	1298
50°	2088	1449	1132
55°	2019	1284	972
60°	1940	1111	807
65°	1851	933	735
70°	1743	769	676
75°	1611	700	631
80°	1422	626	575
85°	1118	494	494

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2154 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	315.7	4.6
10°-20°	866.6	12.5
20°-30°	1216.7	17.6
30°-40°	1326.3	19.1
40°-50°	1219.0	17.6
50°-60°	957.3	13.8
60°-70°	623.1	9.0
70°-80°	320.8	4.6
80°-90°	81.9	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°	2399.0	34.6
0°-40°	3725.3	53.8
0°-60°	5901.7	85.2
0°-90°	6927.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6927.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3368	3368	3368	3368	3368	
5°	3368	3353	3313	3341	3332	319
15°	3204	3170	3067	3009	2978	903
25°	2908	2810	2609	2484	2439	1337
35°	2506	2350	2082	1890	1823	1568
45°	2048	1844	1524	1308	1234	1582
55°	1558	1320	991	808	750	1392
65°	1052	805	530	427	418	1043
75°	561	347	244	222	220	593
85°	131	67	58	58	58	157
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3368.4	3368.4	3368.4	3368.4	3368.4
2.5°	3383.6	3368.4	3334.7	3365.5	3359.3
5°	3368.4	3353.2	3313.4	3340.9	3331.8
7.5°	3340.9	3322.8	3280.0	3292.0	3276.9
10°	3304.3	3283.0	3222.2	3212.8	3194.7
12.5°	3258.8	3231.2	3148.8	3130.7	3097.0
15°	3203.8	3170.1	3066.6	3008.7	2978.3
17.5°	3139.7	3090.9	2962.9	2895.9	2847.0
20°	3066.6	3005.5	2853.2	2777.2	2709.9
22.5°	2987.4	2917.2	2740.3	2636.9	2591.2
25°	2908.2	2810.5	2609.3	2484.4	2438.6
27.5°	2813.7	2709.9	2487.4	2344.1	2273.9
30°	2713.1	2597.0	2353.1	2198.0	2115.5
32.5°	2615.5	2475.1	2225.4	2042.4	1966.0
35°	2505.8	2350.3	2082.2	1890.1	1822.7
37.5°	2399.1	2231.2	1947.9	1737.4	1661.4
40°	2286.2	2103.5	1807.6	1591.2	1512.0
42.5°	2170.4	1975.4	1667.6	1441.8	1365.8
45°	2048.5	1844.1	1524.3	1307.6	1234.5
47.5°	1932.8	1716.4	1387.1	1170.4	1103.5
50°	1804.7	1588.3	1252.9	1042.4	978.7
52.5°	1679.5	1450.9	1124.9	923.6	865.8
55°	1557.5	1319.9	990.6	807.9	750.0
57.5°	1432.8	1188.8	872.0	701.1	652.3
60°	1304.7	1060.8	746.8	591.5	542.7
62.5°	1179.8	935.9	640.0	493.9	469.6
65°	1051.8	804.6	530.4	426.9	417.5
67.5°	929.8	682.7	426.9	374.8	365.8
70°	801.7	564.1	353.5	323.1	310.8
72.5°	679.8	454.0	295.6	271.3	265.2
75°	560.8	347.4	243.8	222.5	219.6
77.5°	442.1	246.8	192.1	179.8	173.7
80°	332.1	176.9	146.2	134.2	134.2
82.5°	231.5	119.0	100.6	94.5	94.5
85°	131.0	66.9	57.9	57.9	57.9
87.5°	48.8	24.3	24.3	21.4	21.4
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	14.42	15.95	14.79	16.26	16.57	10.38	11.91	10.75	12.22	12.53
	3H	16.19	17.56	16.57	17.88	18.24	11.65	13.02	12.03	13.34	13.70
	4H	16.86	18.14	17.26	18.49	18.86	12.15	13.43	12.55	13.78	14.16
	6H	17.34	18.53	17.76	18.89	19.29	12.53	13.72	12.94	14.08	14.47
	8H	17.51	18.64	17.94	19.03	19.43	12.66	13.78	13.08	14.17	14.57
	12H	17.61	18.69	18.04	19.07	19.50	12.74	13.82	13.17	14.20	14.63
4H	2H	14.53	15.81	14.93	16.16	16.54	11.08	12.36	11.48	12.71	13.09
	3H	16.46	17.52	16.87	17.92	18.33	12.52	13.59	12.93	13.99	14.39
	4H	17.21	18.17	17.64	18.58	19.02	13.12	14.08	13.56	14.49	14.93
	6H	17.80	18.63	18.26	19.08	19.54	13.61	14.44	14.07	14.89	15.35
	8H	18.02	18.79	18.48	19.24	19.71	13.77	14.55	14.24	14.99	15.46
	12H	18.17	18.87	18.65	19.34	19.81	13.89	14.59	14.37	15.06	15.53
8H	4H	17.24	18.01	17.70	18.46	18.92	13.48	14.25	13.94	14.70	15.17
	6H	17.87	18.52	18.37	19.01	19.48	14.06	14.71	14.56	15.20	15.67
	8H	18.12	18.70	18.64	19.21	19.70	14.28	14.86	14.80	15.37	15.86
	12H	18.33	18.84	18.84	19.33	19.89	14.46	14.97	14.97	15.47	16.03
12H	4H	17.22	17.91	17.70	18.39	18.86	13.52	14.21	14.00	14.69	15.16
	6H	17.85	18.43	18.37	18.94	19.43	14.13	14.70	14.64	15.21	15.70
	8H	18.14	18.65	18.65	19.14	19.70	14.40	14.91	14.91	15.40	15.97