

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: P1056098

Luminaire Tested: S124R3DR-H1020D850-X4F0-XX-UDD-FLL-S

Issue Date: 7/25/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P1056098  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/25/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124R3DR-H1020D850-X4F0-XX-UDD-FLL-S  
Description: DEFINE 4, SILVER 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: 5000K CCT, 80 CRI LEDS  
Ballast/Driver: -

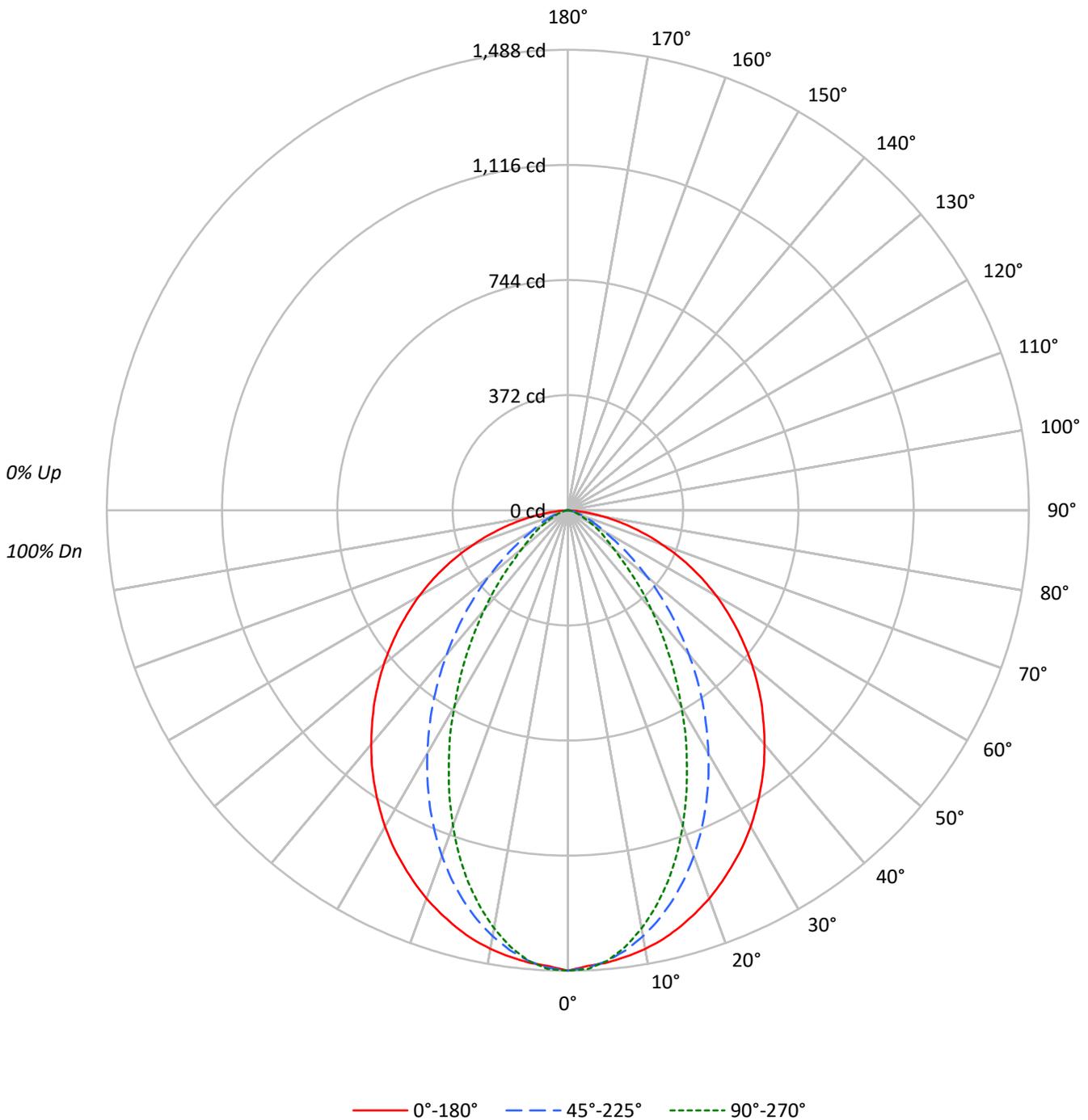
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2405.2 lumens  
Efficiency: N/A  
Efficacy: 77.8 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 0.87 / 1.03  
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 30.9  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	104	101	108	105	102	99	101	98	96	97	95	93	94	92	90	89
2	103	96	91	86	101	94	89	85	91	87	83	88	84	81	85	82	79	78
3	95	87	80	74	93	85	79	74	82	77	73	80	75	71	77	73	70	68
4	89	78	71	65	86	77	70	65	75	69	64	73	67	63	71	66	62	60
5	82	71	64	58	80	70	63	58	68	62	57	66	61	56	65	60	56	54
6	77	65	57	52	75	64	57	52	63	56	51	61	55	51	60	54	50	48
7	72	60	52	47	70	59	52	47	58	51	46	56	50	46	55	50	46	44
8	67	55	48	42	66	55	47	42	53	47	42	52	46	42	51	46	42	40
9	63	51	44	39	62	51	44	39	50	43	39	49	43	38	48	42	38	37
10	60	48	41	36	59	47	40	36	46	40	36	45	40	35	45	39	35	34

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

	0°	45°	90°
0°	13152	13152	13152
5°	13017	12967	12967
10°	12919	12546	12309
15°	12766	11941	11384
20°	12562	11180	10203
25°	12308	10282	8863
30°	12047	9262	7466
35°	11735	8177	6144
40°	11397	7017	4843
45°	11048	5835	3620
50°	10668	4591	2648
55°	10248	3394	2113
60°	9796	2352	1616
65°	9213	1826	1188
70°	8342	1290	931
75°	7286	898	711
80°	5855	703	636
85°	3236	558	558

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 11048 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	138.0	5.7
10°-20°	368.6	15.3
20°-30°	491.7	20.4
30°-40°	495.1	20.6
40°-50°	406.0	16.9
50°-60°	277.5	11.5
60°-70°	155.1	6.4
70°-80°	61.5	2.6
80°-90°	11.7	0.5
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°	998.3	41.5
0°-40°	1493.4	62.1
0°-60°	2176.9	90.5
0°-90°	2405.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2405.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1488	1488	1488	1488	1488	
5°	1467	1483	1461	1454	1461	139
15°	1395	1379	1305	1259	1244	393
25°	1262	1199	1054	947	908	581
35°	1087	972	758	614	569	680
45°	884	722	467	328	290	681
55°	665	467	220	147	137	595
65°	440	222	87	62	57	435
75°	213	58	26	22	21	229
85°	32	6	6	6	6	45
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1487.5	1487.5	1487.5	1487.5	1487.5
2.5°	1473.6	1491.6	1479.1	1480.5	1483.3
5°	1466.7	1483.3	1461.1	1454.2	1461.1
7.5°	1454.2	1466.7	1433.4	1419.6	1422.4
10°	1439.0	1443.1	1397.4	1373.9	1371.1
12.5°	1419.6	1414.1	1354.5	1319.9	1311.6
15°	1394.7	1379.4	1304.6	1258.9	1243.7
17.5°	1365.6	1339.3	1249.2	1189.7	1167.5
20°	1335.1	1296.3	1188.3	1112.1	1084.4
22.5°	1299.1	1250.6	1123.2	1030.4	998.6
25°	1261.7	1199.4	1054.0	947.3	908.5
27.5°	1222.9	1146.8	981.9	862.8	824.1
30°	1180.0	1090.0	907.2	778.4	731.3
32.5°	1134.3	1031.8	832.4	695.3	650.9
35°	1087.2	972.2	757.6	613.5	569.2
37.5°	1038.7	911.3	682.8	536.0	491.7
40°	987.5	849.0	608.0	462.6	419.6
42.5°	934.9	785.3	536.0	393.3	353.2
45°	883.6	721.6	466.7	328.2	289.5
47.5°	829.6	657.9	398.9	267.3	234.1
50°	775.6	594.2	333.8	214.7	192.5
52.5°	720.2	530.4	274.2	175.9	160.7
55°	664.8	466.7	220.2	146.8	137.1
57.5°	609.4	403.0	170.4	124.6	113.6
60°	554.0	340.7	133.0	101.1	91.4
62.5°	497.2	278.4	109.4	80.3	72.0
65°	440.4	221.6	87.3	62.3	56.8
67.5°	383.6	169.0	66.5	48.5	44.3
70°	322.7	120.5	49.9	37.4	36.0
72.5°	270.1	81.7	36.0	29.1	27.7
75°	213.3	58.2	26.3	22.2	20.8
77.5°	164.8	37.4	19.4	18.0	16.6
80°	115.0	20.8	13.8	12.5	12.5
82.5°	70.6	11.1	9.7	8.3	8.3
85°	31.9	5.5	5.5	5.5	5.5
87.5°	5.5	2.8	2.8	2.8	2.8
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	19.68	21.08	20.04	21.40	21.71	10.76	12.17	11.13	12.48	12.80
	3H	21.26	22.51	21.64	22.84	23.21	11.36	12.61	11.73	12.94	13.30
	4H	21.86	23.03	22.26	23.38	23.76	11.51	12.68	11.92	13.03	13.41
	6H	22.29	23.36	22.70	23.73	24.13	11.62	12.70	12.03	13.07	13.46
	8H	22.40	23.42	22.83	23.81	24.22	11.64	12.66	12.07	13.05	13.46
	12H	22.44	23.42	22.88	23.80	24.23	11.65	12.62	12.08	13.01	13.44
4H	2H	19.53	20.70	19.93	21.05	21.43	11.35	12.52	11.75	12.87	13.25
	3H	21.18	22.14	21.59	22.54	22.94	12.06	13.02	12.47	13.42	13.82
	4H	21.78	22.64	22.22	23.06	23.50	12.27	13.12	12.70	13.54	13.98
	6H	22.28	23.02	22.74	23.46	23.93	12.43	13.17	12.89	13.62	14.08
	8H	22.42	23.11	22.89	23.56	24.03	12.47	13.16	12.93	13.60	14.07
	12H	22.49	23.10	22.98	23.59	24.06	12.49	13.10	12.97	13.58	14.06
8H	4H	21.68	22.37	22.14	22.81	23.28	12.54	13.23	13.00	13.67	14.14
	6H	22.16	22.72	22.66	23.22	23.70	12.74	13.31	13.24	13.80	14.28
	8H	22.30	22.81	22.82	23.32	23.81	12.80	13.31	13.32	13.82	14.31
	12H	22.39	22.84	22.91	23.34	23.90	12.86	13.31	13.37	13.80	14.37
12H	4H	21.64	22.25	22.12	22.73	23.20	12.56	13.18	13.05	13.66	14.13
	6H	22.10	22.61	22.62	23.12	23.62	12.77	13.28	13.29	13.79	14.28
	8H	22.27	22.72	22.78	23.21	23.78	12.86	13.31	13.38	13.80	14.37