

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P1056096

Luminaire Tested: S124R3DR-H1020D840-X4F0-XX-UDD-F-W

Issue Date: 7/25/2025

Test Information

Test Method: LM-79-2024
Report Number: P1056096
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2503-402-7)
Test Lab: INNOVATION CENTER
Issue Date: 7/25/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124R3DR-H1020D840-X4F0-XX-UDD-F-W
Description: DEFINE 4, WHITE 3-INCH REGRESSED DIRECT RECESSED HOUSING WITH FROSTED LENS
HIGH PERFORMANCE LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

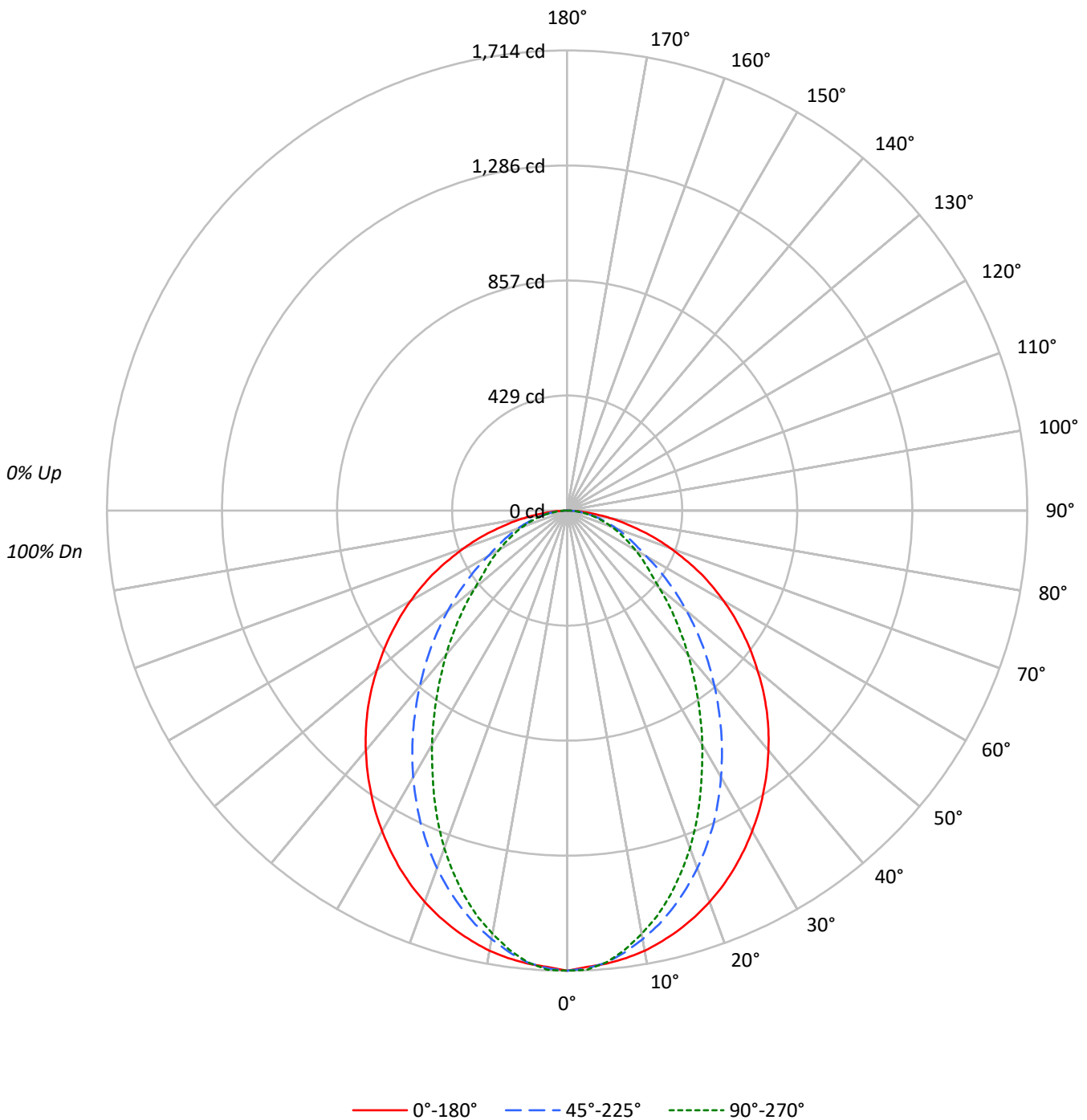
Lumens per Lamp: N/A
Luminaire Lumens: 3413.8 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.95 / 1.12
Luminous Opening: Rectangular (W 0.31' x L: 3.9' x H: 0')
CIE Type: Direct

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

TEST NUMBER: P1056096

CATALOG NUMBER: S124R3DR-H1020D840-X4F0-XX-UDD-F-W

Luminous Intensity Polar Plot





TEST NUMBER: P1056096

CATALOG NUMBER: S124R3DR-H1020D840-X4F0-XX-UDD-F-W

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	110	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75	73
3	93	83	75	69	90	81	74	69	79	73	68	76	71	67	73	69	65	63
4	85	74	66	60	83	73	65	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	53	47	72	60	52	46	58	51	46	57	50	46	55	50	45	43
7	68	56	47	42	67	55	47	42	53	46	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	38	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	15153	15153	15153
5°	15032	14999	14987
10°	14945	14549	14368
15°	14788	14003	13575
20°	14595	13338	12590
25°	14358	12574	11442
30°	14073	11704	10274
35°	13776	10794	9147
40°	13464	9854	8093
45°	13136	8941	7112
50°	12733	7979	6141
55°	12344	7018	5580
60°	11909	6021	5174
65°	11372	5462	4828
70°	10562	5054	4565
75°	9565	4653	4308
80°	8350	4302	4048
85°	6401	3966	3713

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 13136 cd/sqm



TEST NUMBER: P1056096

CATALOG NUMBER: S124R3DR-H1020D840-X4F0-XX-UDD-F-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	159.6	4.7
10°-20°	432.8	12.7
20°-30°	599.3	17.6
30°-40°	643.3	18.8
40°-50°	585.0	17.1
50°-60°	460.7	13.5
60°-70°	315.3	9.2
70°-80°	169.7	5.0
80°-90°	48.1	1.4
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°	1191.7	34.9
0°-40°	1835.0	53.8
0°-60°	2880.6	84.4
0°-90°	3413.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3413.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1714	1714	1714	1714	1714	
5°	1694	1713	1690	1681	1689	161
15°	1616	1598	1530	1488	1483	456
25°	1472	1411	1289	1196	1173	678
35°	1276	1177	1000	879	848	798
45°	1051	917	715	592	569	810
55°	801	648	455	367	362	716
65°	544	388	261	232	231	536
75°	280	170	136	125	126	299
85°	63	43	39	37	37	76
90°	0	0	0	0	0	



TEST NUMBER: P1056096

CATALOG NUMBER: S124R3DR-H1020D840-X4F0-XX-UDD-F-W

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1713.9	1713.9	1713.9	1713.9	1713.9
2.5°	1701.3	1721.5	1706.4	1708.9	1711.4
5°	1693.7	1712.7	1690.0	1681.1	1688.7
7.5°	1681.1	1693.7	1658.4	1642.0	1649.6
10°	1664.7	1667.3	1620.6	1596.6	1600.4
12.5°	1642.0	1635.7	1579.0	1544.9	1547.5
15°	1615.6	1597.9	1529.8	1488.2	1483.1
17.5°	1585.3	1556.3	1475.6	1422.6	1412.5
20°	1551.2	1512.1	1417.6	1349.4	1338.1
22.5°	1513.4	1463.0	1354.5	1273.8	1257.4
25°	1471.8	1411.2	1288.9	1195.6	1172.9
27.5°	1426.4	1355.8	1218.3	1116.1	1087.1
30°	1378.5	1297.7	1146.4	1036.7	1006.4
32.5°	1329.3	1238.5	1073.3	957.2	925.7
35°	1276.3	1176.7	1000.1	879.0	847.5
37.5°	1222.1	1112.4	925.7	803.4	770.6
40°	1166.6	1048.0	853.8	727.7	701.2
42.5°	1109.8	982.4	783.2	657.1	633.1
45°	1050.6	916.9	715.1	591.5	568.8
47.5°	990.0	850.0	645.7	529.7	508.3
50°	925.7	783.2	580.1	469.2	446.5
52.5°	863.9	715.1	517.1	409.9	398.5
55°	800.8	648.2	455.3	367.0	362.0
57.5°	737.8	581.4	398.5	332.9	327.9
60°	673.5	515.8	340.5	297.6	292.6
62.5°	609.1	451.5	297.6	263.6	261.1
65°	543.6	388.4	261.1	232.1	230.8
67.5°	474.2	327.9	228.3	204.3	203.0
70°	408.6	267.4	195.5	176.6	176.6
72.5°	346.8	211.9	165.2	150.1	150.1
75°	280.0	170.3	136.2	124.9	126.1
77.5°	220.7	133.7	109.7	102.2	102.2
80°	164.0	99.6	84.5	78.2	79.5
82.5°	111.0	69.4	60.5	56.8	56.8
85°	63.1	42.9	39.1	36.6	36.6
87.5°	22.7	20.2	18.9	16.4	17.7
90°	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P1056096
 CATALOG NUMBER: S124R3DR-H1020D840-X4F0-XX-UDD-F-W

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	20.59	22.11	20.95	22.42	22.74	16.36	17.89	16.73	18.20	18.52
	3H	22.36	23.73	22.74	24.06	24.42	17.97	19.34	18.35	19.67	20.03
	4H	23.03	24.32	23.43	24.67	25.05	18.61	19.89	19.01	20.24	20.62
	6H	23.54	24.73	23.95	25.10	25.49	19.11	20.29	19.52	20.66	21.05
	8H	23.70	24.84	24.13	25.23	25.63	19.28	20.41	19.70	20.80	21.20
	12H	23.80	24.89	24.23	25.27	25.70	19.40	20.48	19.83	20.86	21.29
4H	2H	20.68	21.97	21.08	22.32	22.69	17.08	18.37	17.48	18.72	19.09
	3H	22.63	23.70	23.04	24.10	24.50	18.89	19.96	19.30	20.36	20.76
	4H	23.38	24.35	23.81	24.76	25.20	19.63	20.59	20.06	21.01	21.44
	6H	24.02	24.86	24.47	25.30	25.76	20.24	21.08	20.70	21.52	21.98
	8H	24.24	25.02	24.70	25.46	25.93	20.46	21.24	20.92	21.69	22.16
	12H	24.39	25.09	24.87	25.57	26.04	20.63	21.33	21.11	21.81	22.28
8H	4H	23.44	24.22	23.90	24.67	25.13	20.02	20.80	20.48	21.24	21.71
	6H	24.14	24.79	24.63	25.28	25.76	20.75	21.40	21.24	21.89	22.36
	8H	24.41	24.99	24.92	25.50	25.99	21.04	21.62	21.55	22.13	22.62
	12H	24.62	25.14	25.13	25.63	26.20	21.28	21.80	21.79	22.29	22.85
12H	4H	23.43	24.13	23.91	24.61	25.08	20.07	20.77	20.55	21.25	21.72
	6H	24.13	24.71	24.64	25.22	25.71	20.83	21.41	21.34	21.92	22.41
	8H	24.44	24.95	24.95	25.45	26.01	21.18	21.69	21.69	22.19	22.75