

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: P646644

Luminaire Tested: S123DR-S560D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646644
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DR-S560D927-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1969.5 lumens
Efficiency: N/A
Efficacy: 105.9 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

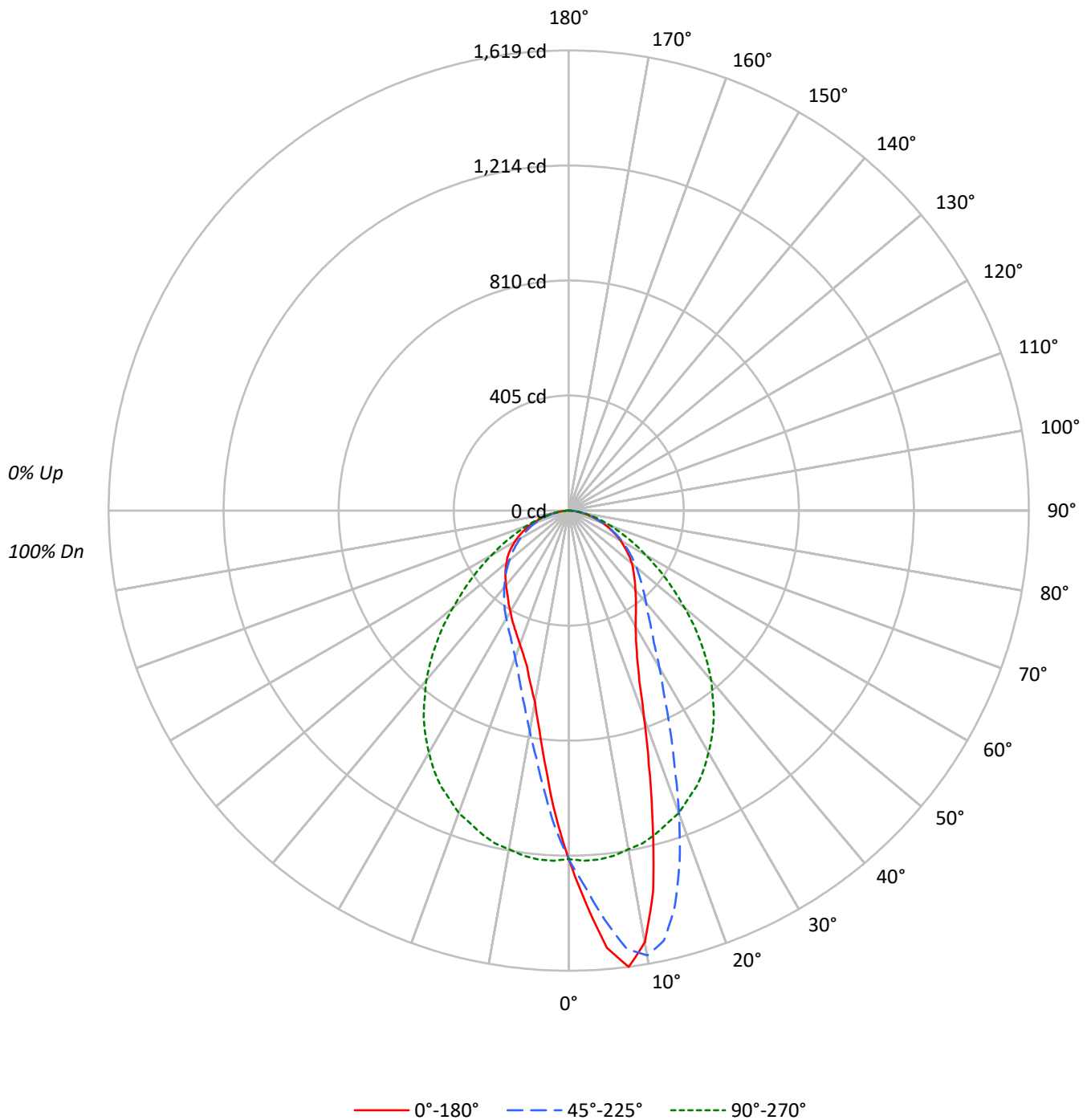
Input Watts (W): 18.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					30					10					0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	110	106	102	98		107	103	100	97		99	96	94		95	93	91		92	90	88
2	101	94	88	82		99	92	86	82		88	84	80		85	81	78		82	79	76
3	93	84	76	70		91	82	75	70		79	73	69		77	72	67		74	70	66
4	86	75	67	61		84	74	67	61		72	65	60		69	64	59		67	62	58
5	80	68	60	54		78	67	59	54		65	58	53		63	57	52		61	56	52
6	74	62	54	48		73	61	53	48		60	53	47		58	52	47		56	51	47
7	70	57	49	43		68	56	49	43		55	48	43		53	47	43		52	47	42
8	65	53	45	39		64	52	44	39		51	44	39		49	43	39		48	43	39
9	61	49	41	36		60	48	41	36		47	40	36		46	40	36		45	40	35
10	58	45	38	33		57	45	38	33		44	37	33		43	37	33		42	37	33

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	14770	14770	14770	14770	14770
5°	18679	17468	14901	11950	11036
10°	18860	19444	14803	9652	8365
15°	14206	17994	14702	8088	7074
20°	9898	14551	14514	7052	6425
25°	7547	11162	14195	6465	6027
30°	6529	8871	13684	6109	5706
35°	6057	7430	13094	5823	5481
40°	5735	6647	12266	5556	5405
45°	5545	6174	11214	5322	5369
50°	5449	5832	9969	5117	5342
55°	5245	5508	8747	4935	5365
60°	5058	5208	7538	4757	5278
65°	4753	4881	6503	4556	5172
70°	4390	4531	5531	4309	4869
75°	3971	4106	4739	3948	4451
80°	3275	3511	3747	3435	3747
85°	2599	2834	2751	2986	2986

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 12804 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	115.9	5.9
10°-20°	288.3	14.6
20°-30°	341.3	17.3
30°-40°	343.0	17.4
40°-50°	314.6	16.0
50°-60°	259.6	13.2
60°-70°	183.7	9.3
70°-80°	98.1	5.0
80°-90°	24.9	1.3
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°	745.5	37.9
0°-40°	1088.5	55.3
0°-60°	1662.7	84.4
0°-90°	1969.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1969.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1226	1226	1226	1226	1226	
5°	1544	1444	1232	988	912	147
15°	1139	1442	1179	648	567	315
25°	568	840	1068	486	453	268
35°	412	505	890	396	373	259
45°	325	362	658	312	315	252
55°	250	262	416	235	255	223
65°	167	171	228	160	181	166
75°	85	88	102	85	96	90
85°	19	20	20	22	22	22
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8
2.5°	1381.6	1378.8	1364.6	1355.5	1357.7	1337.3	1324.8	1314.5	1307.7	1291.2	1282.7
5°	1544.3	1552.3	1543.2	1538.6	1515.3	1478.3	1444.2	1436.8	1405.0	1365.7	1352.1
7.5°	1619.4	1623.9	1618.3	1618.3	1610.9	1577.9	1554.0	1535.2	1480.6	1430.0	1406.7
10°	1541.5	1551.7	1573.9	1584.1	1598.9	1594.4	1589.2	1581.9	1544.9	1486.3	1459.6
12.5°	1370.3	1382.8	1427.1	1433.4	1484.0	1532.9	1548.9	1567.1	1570.5	1521.0	1492.0
15°	1138.8	1173.4	1213.8	1233.2	1297.4	1400.4	1442.5	1492.0	1550.6	1530.1	1507.3
17.5°	938.0	951.0	994.3	1035.2	1099.5	1218.4	1296.3	1370.3	1496.0	1516.4	1502.2
20°	771.9	783.8	840.7	837.9	923.2	1056.8	1134.8	1220.1	1405.5	1472.1	1469.2
22.5°	648.4	667.2	699.1	716.7	778.1	897.0	971.0	1077.3	1302.6	1407.8	1419.2
25°	567.7	581.3	600.7	616.0	663.8	761.6	839.6	927.2	1172.9	1323.6	1352.1
27.5°	512.5	518.2	537.5	546.6	578.5	662.7	723.0	803.2	1052.9	1229.2	1269.0
30°	469.3	473.2	490.3	493.2	518.2	579.0	637.6	703.0	935.7	1131.9	1177.4
32.5°	439.1	442.0	455.0	456.2	475.0	519.3	560.3	621.7	824.8	1027.8	1084.1
35°	411.8	413.5	423.2	426.0	438.0	471.5	505.1	552.3	736.6	934.0	996.0
37.5°	387.9	390.2	395.9	399.3	409.0	435.7	458.5	497.7	651.9	836.1	905.0
40°	364.6	368.6	372.6	372.6	383.4	403.9	422.6	455.0	579.0	750.8	811.7
42.5°	344.7	348.7	350.4	351.0	356.6	375.4	391.3	413.5	523.9	675.2	734.9
45°	325.4	327.1	328.8	329.9	333.9	350.4	362.3	383.4	471.5	605.2	663.2
47.5°	307.7	307.7	308.9	310.6	313.4	325.4	335.6	351.0	426.6	542.6	590.4
50°	290.7	290.7	289.0	290.1	291.8	300.9	311.1	323.7	384.5	485.2	527.9
52.5°	270.2	270.2	270.8	269.0	270.8	278.7	286.7	299.2	348.7	432.3	468.7
55°	249.7	252.0	250.3	249.1	251.4	256.5	262.2	273.0	315.1	390.2	419.2
57.5°	229.2	230.4	229.8	231.5	230.4	234.9	240.0	247.4	285.0	343.0	370.3
60°	209.9	209.9	208.8	209.9	209.9	212.2	216.1	223.5	254.3	302.6	325.4
62.5°	188.3	188.8	189.4	188.8	188.3	191.1	194.5	199.7	227.5	263.4	280.4
65°	166.7	167.2	168.9	168.4	167.8	170.6	171.2	176.9	197.9	228.7	241.2
67.5°	147.3	146.2	146.8	147.9	148.5	149.0	150.2	155.9	170.6	195.7	205.9
70°	124.6	125.7	125.1	126.8	125.7	127.4	128.6	132.5	146.8	163.2	170.1
72.5°	104.1	104.7	104.7	106.4	105.8	107.5	108.6	110.3	120.6	135.4	138.2
75°	85.3	85.3	86.5	87.0	87.0	87.0	88.2	89.3	97.8	106.9	109.8
77.5°	64.8	67.7	67.1	67.7	68.3	70.0	68.8	71.1	76.2	81.3	83.0
80°	47.2	47.2	47.8	48.3	49.5	50.6	50.6	52.9	55.2	58.0	59.7
82.5°	30.1	30.7	32.4	33.0	33.6	35.3	35.3	35.3	38.1	39.2	39.2
85°	18.8	17.6	18.8	19.3	19.9	20.5	20.5	21.6	22.2	22.8	22.8
87.5°	9.1	9.1	9.1	9.1	9.7	9.7	9.7	9.7	10.2	10.2	10.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8
2.5°	1254.2	1233.2	1201.9	1176.3	1177.4	1154.1	1137.0	1114.9	1108.0	1101.2	1092.1
5°	1280.4	1232.0	1167.2	1115.4	1099.5	1060.8	1011.9	988.0	973.8	948.8	939.1
7.5°	1312.8	1224.1	1125.1	1044.3	1026.7	962.4	904.4	876.0	849.2	831.6	810.0
10°	1333.9	1209.9	1082.4	975.5	958.4	885.1	809.4	788.9	755.4	733.8	713.3
12.5°	1349.8	1199.0	1038.6	914.1	886.2	815.1	738.9	711.0	686.6	655.3	640.5
15°	1364.0	1178.6	993.7	849.8	820.8	744.0	673.5	648.4	626.3	599.0	585.9
17.5°	1358.9	1153.5	944.2	792.9	763.9	688.3	620.6	592.1	577.3	553.4	544.3
20°	1352.6	1131.9	897.6	738.9	707.0	636.5	570.5	550.0	535.2	519.9	511.9
22.5°	1332.7	1097.8	850.4	689.4	659.2	588.7	532.4	515.3	504.0	493.2	486.3
25°	1299.2	1067.7	804.3	639.9	616.0	550.0	502.3	486.3	478.9	468.1	461.9
27.5°	1257.6	1027.8	758.2	599.5	572.2	513.6	472.7	462.4	454.5	445.9	439.7
30°	1205.3	983.5	713.3	560.3	535.2	483.5	448.2	439.1	431.7	423.2	415.8
32.5°	1138.8	938.5	671.2	523.9	502.8	457.9	425.5	418.1	411.8	401.6	397.6
35°	1064.2	890.2	629.7	489.2	469.3	430.0	403.3	395.9	389.6	381.1	377.7
37.5°	988.6	832.7	588.7	459.6	442.0	406.7	381.1	373.7	368.0	360.6	358.9
40°	908.4	779.8	548.3	429.4	414.1	383.9	358.9	353.2	347.5	343.0	341.9
42.5°	827.6	719.0	513.1	404.4	387.9	360.1	337.3	331.0	327.6	325.4	325.9
45°	751.4	658.1	476.7	375.4	364.0	338.4	317.4	312.3	309.4	307.7	310.0
47.5°	668.9	596.1	442.5	351.0	339.6	316.8	296.9	292.4	291.2	290.7	294.6
50°	596.1	531.8	405.6	325.9	316.3	292.9	277.0	273.0	271.9	273.6	279.3
52.5°	527.3	472.1	372.0	302.6	292.9	271.9	257.1	254.3	253.7	257.7	263.4
55°	459.0	416.4	335.6	277.0	267.3	249.1	237.8	234.9	234.3	242.3	247.4
57.5°	401.0	362.3	301.5	252.6	245.2	228.1	217.9	215.6	217.3	224.7	229.8
60°	344.1	312.8	270.2	226.4	220.7	205.9	197.9	197.4	199.1	207.6	212.7
62.5°	292.9	269.0	236.6	202.5	198.5	185.4	178.0	179.2	180.9	189.4	194.0
65°	249.1	228.1	203.6	178.6	173.5	164.4	159.3	159.8	163.2	170.6	175.2
67.5°	206.5	189.4	175.8	155.9	151.9	143.9	139.9	142.2	143.9	151.3	155.9
70°	170.6	157.0	146.8	132.0	129.1	122.3	119.4	122.3	124.0	130.3	135.9
72.5°	137.1	128.6	120.6	109.8	106.9	102.4	101.8	103.0	105.8	112.1	114.3
75°	106.4	101.8	95.0	88.2	86.5	84.2	83.6	84.8	87.6	91.0	93.3
77.5°	80.8	76.8	71.7	68.8	66.6	65.4	66.0	67.7	68.8	72.2	73.9
80°	58.6	54.0	52.9	48.9	48.3	47.8	48.9	49.5	51.2	53.5	54.6
82.5°	38.7	35.3	34.1	33.6	33.0	32.4	34.1	34.7	35.8	37.5	38.1
85°	21.0	19.9	19.9	19.3	19.9	21.0	21.0	21.6	21.6	22.2	21.6
87.5°	9.7	8.5	9.1	9.1	9.1	9.7	9.7	10.2	10.2	10.2	9.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	1225.8	1225.8	1225.8
2.5°	1091.5	1087.6	1071.6
5°	930.6	916.9	912.4
7.5°	807.7	806.6	782.7
10°	703.6	705.3	683.7
12.5°	638.2	624.0	622.3
15°	582.5	569.4	567.1
17.5°	540.9	533.0	530.7
20°	509.7	505.1	501.1
22.5°	484.6	478.9	475.5
25°	459.6	454.5	453.3
27.5°	438.0	431.7	431.7
30°	415.8	411.8	410.1
32.5°	395.9	392.5	392.5
35°	376.6	374.8	372.6
37.5°	358.9	358.9	357.8
40°	341.9	343.6	343.6
42.5°	327.1	328.8	328.8
45°	311.1	314.0	315.1
47.5°	295.2	299.8	300.9
50°	281.0	284.4	285.0
52.5°	265.6	269.6	272.5
55°	249.7	253.7	255.4
57.5°	232.6	236.6	237.2
60°	213.9	217.9	219.0
62.5°	196.8	199.1	200.2
65°	175.8	179.2	181.4
67.5°	156.4	159.3	159.3
70°	135.4	136.5	138.2
72.5°	115.5	116.0	116.0
75°	93.9	95.0	95.6
77.5°	73.9	74.5	74.5
80°	54.6	54.0	54.0
82.5°	38.1	36.4	36.4
85°	21.6	21.0	21.6
87.5°	9.7	9.7	9.7
90°	0.0	0.0	0.0

(END OF REPORT)