

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: P646632

Luminaire Tested: S123DR-S340D835-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646632
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-S340D835-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1511.8 lumens
Efficiency: N/A
Efficacy: 127.0 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

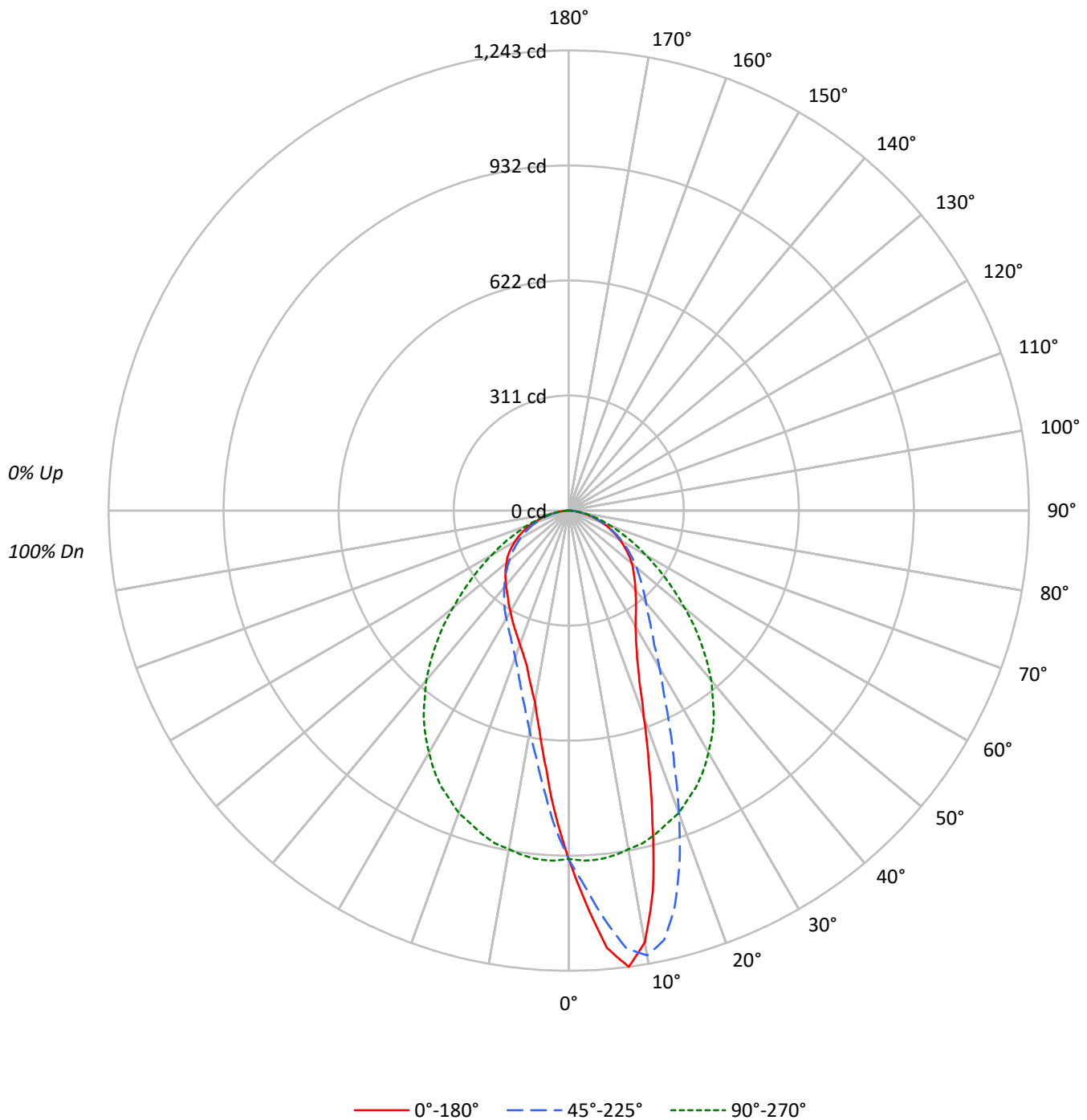
Input Watts (W): 11.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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
RW	70	50	30	10	70	50	30	10	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	100		
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86		
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74		
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64		
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56		
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50		
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45		
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40		
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37		
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34		
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	11337	11337	11337	11337	11337
5°	14338	13409	11438	9173	8470
10°	14478	14926	11363	7410	6421
15°	10904	13813	11285	6210	5430
20°	7597	11170	11141	5414	4933
25°	5794	8568	10895	4963	4627
30°	5012	6811	10503	4690	4380
35°	4650	5703	10051	4470	4207
40°	4403	5103	9415	4264	4148
45°	4255	4739	8609	4085	4122
50°	4182	4476	7652	3929	4100
55°	4027	4229	6714	3788	4117
60°	3882	3998	5786	3651	4051
65°	3647	3746	4992	3498	3972
70°	3368	3477	4245	3308	3738
75°	3049	3152	3641	3031	3417
80°	2512	2699	2880	2637	2880
85°	1991	2171	2115	2295	2295

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 9829 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.0	5.9
10°-20°	221.3	14.6
20°-30°	262.0	17.3
30°-40°	263.3	17.4
40°-50°	241.5	16.0
50°-60°	199.3	13.2
60°-70°	141.0	9.3
70°-80°	75.3	5.0
80°-90°	19.1	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°	572.3	37.9
0°-40°	835.6	55.3
0°-60°	1276.3	84.4
0°-90°	1511.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1511.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	941	941	941	941	941	
5°	1185	1109	946	758	700	113
15°	874	1107	905	498	435	241
25°	436	644	820	373	348	206
35°	316	388	683	304	286	199
45°	250	278	505	240	242	193
55°	192	201	320	180	196	172
65°	128	131	175	123	139	127
75°	66	68	78	65	73	69
85°	14	16	15	17	17	17
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°	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9
2.5°	1060.6	1058.4	1047.5	1040.5	1042.2	1026.5	1016.9	1009.0	1003.8	991.1	984.6
5°	1185.4	1191.5	1184.6	1181.1	1163.2	1134.8	1108.6	1102.9	1078.5	1048.3	1037.9
7.5°	1243.1	1246.6	1242.2	1242.2	1236.5	1211.2	1192.9	1178.4	1136.5	1097.7	1079.8
10°	1183.3	1191.1	1208.1	1216.0	1227.4	1223.9	1219.9	1214.3	1185.9	1140.9	1120.4
12.5°	1051.8	1061.4	1095.5	1100.3	1139.2	1176.7	1188.9	1202.9	1205.5	1167.5	1145.3
15°	874.1	900.8	931.8	946.6	995.9	1075.0	1107.3	1145.3	1190.2	1174.5	1157.1
17.5°	720.0	730.0	763.2	794.7	844.0	935.2	995.1	1051.8	1148.3	1164.0	1153.1
20°	592.5	601.7	645.3	643.1	708.6	811.2	871.1	936.6	1078.9	1130.0	1127.8
22.5°	497.8	512.2	536.6	550.1	597.3	688.6	745.3	827.0	999.9	1080.6	1089.4
25°	435.8	446.2	461.1	472.9	509.5	584.6	644.5	711.7	900.3	1016.0	1037.9
27.5°	393.4	397.8	412.6	419.6	444.0	508.7	554.9	616.5	808.2	943.5	974.1
30°	360.2	363.3	376.4	378.6	397.8	444.5	489.5	539.7	718.2	868.9	903.8
32.5°	337.1	339.3	349.3	350.2	364.6	398.6	430.1	477.2	633.1	789.0	832.2
35°	316.1	317.4	324.8	327.0	336.2	362.0	387.7	424.0	565.4	716.9	764.5
37.5°	297.8	299.5	303.9	306.5	313.9	334.5	351.9	382.0	500.4	641.8	694.7
40°	279.9	282.9	286.0	286.0	294.3	310.0	324.4	349.3	444.5	576.3	623.1
42.5°	264.6	267.7	269.0	269.4	273.8	288.2	300.4	317.4	402.1	518.3	564.1
45°	249.7	251.1	252.4	253.2	256.3	269.0	278.1	294.3	362.0	464.6	509.1
47.5°	236.2	236.2	237.1	238.4	240.6	249.7	257.6	269.4	327.5	416.5	453.2
50°	223.1	223.1	221.8	222.7	224.0	231.0	238.8	248.4	295.2	372.4	405.2
52.5°	207.4	207.4	207.8	206.5	207.8	213.9	220.1	229.7	267.7	331.8	359.8
55°	191.7	193.4	192.1	191.2	193.0	196.9	201.3	209.6	241.9	299.5	321.8
57.5°	176.0	176.8	176.4	177.7	176.8	180.3	184.3	189.9	218.7	263.3	284.2
60°	161.1	161.1	160.2	161.1	161.1	162.9	165.9	171.6	195.2	232.3	249.7
62.5°	144.5	145.0	145.4	145.0	144.5	146.7	149.3	153.3	174.6	202.2	215.3
65°	127.9	128.4	129.7	129.2	128.8	131.0	131.4	135.8	151.9	175.5	185.1
67.5°	113.1	112.2	112.6	113.5	114.0	114.4	115.3	119.6	131.0	150.2	158.1
70°	95.6	96.5	96.1	97.4	96.5	97.8	98.7	101.7	112.6	125.3	130.6
72.5°	79.9	80.3	80.3	81.6	81.2	82.5	83.4	84.7	92.6	103.9	106.1
75°	65.5	65.5	66.4	66.8	66.8	66.8	67.7	68.5	75.1	82.1	84.3
77.5°	49.8	52.0	51.5	52.0	52.4	53.7	52.8	54.6	58.5	62.4	63.7
80°	36.2	36.2	36.7	37.1	38.0	38.9	38.9	40.6	42.4	44.5	45.8
82.5°	23.1	23.6	24.9	25.3	25.8	27.1	27.1	27.1	29.3	30.1	30.1
85°	14.4	13.5	14.4	14.8	15.3	15.7	15.7	16.6	17.0	17.5	17.5
87.5°	7.0	7.0	7.0	7.0	7.4	7.4	7.4	7.4	7.9	7.9	7.9
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°	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9	940.9
2.5°	962.8	946.6	922.6	902.9	903.8	885.9	872.8	855.8	850.5	845.3	838.3
5°	982.8	945.7	896.0	856.2	844.0	814.3	776.8	758.4	747.5	728.3	720.9
7.5°	1007.7	939.6	863.6	801.6	788.1	738.8	694.2	672.4	651.9	638.3	621.8
10°	1023.9	928.7	830.9	748.8	735.7	679.4	621.3	605.6	579.8	563.2	547.5
12.5°	1036.1	920.4	797.3	701.7	680.3	625.7	567.2	545.8	527.0	503.0	491.6
15°	1047.0	904.7	762.8	652.3	630.0	571.1	517.0	497.8	480.7	459.8	449.7
17.5°	1043.1	885.5	724.8	608.7	586.4	528.3	476.4	454.5	443.2	424.8	417.8
20°	1038.3	868.9	689.0	567.2	542.7	488.6	437.9	422.2	410.9	399.1	393.0
22.5°	1023.0	842.7	652.8	529.2	506.0	451.9	408.7	395.6	386.8	378.6	373.3
25°	997.2	819.5	617.4	491.2	472.9	422.2	385.5	373.3	367.6	359.3	354.5
27.5°	965.4	789.0	582.0	460.2	439.2	394.3	362.8	355.0	348.9	342.3	337.5
30°	925.2	754.9	547.5	430.1	410.9	371.1	344.1	337.1	331.4	324.8	319.2
32.5°	874.1	720.4	515.2	402.1	386.0	351.5	326.6	320.9	316.1	308.3	305.2
35°	816.9	683.3	483.3	375.5	360.2	330.1	309.6	303.9	299.1	292.5	289.9
37.5°	758.9	639.2	451.9	352.8	339.3	312.2	292.5	286.9	282.5	276.8	275.5
40°	697.3	598.6	420.9	329.7	317.9	294.7	275.5	271.1	266.8	263.3	262.4
42.5°	635.3	551.9	393.8	310.4	297.8	276.4	258.9	254.1	251.5	249.7	250.2
45°	576.8	505.2	365.9	288.2	279.4	259.8	243.6	239.7	237.5	236.2	238.0
47.5°	513.5	457.6	339.7	269.4	260.7	243.2	227.9	224.4	223.6	223.1	226.2
50°	457.6	408.2	311.3	250.2	242.8	224.9	212.6	209.6	208.7	210.0	214.4
52.5°	404.8	362.4	285.6	232.3	224.9	208.7	197.4	195.2	194.7	197.8	202.2
55°	352.4	319.6	257.6	212.6	205.2	191.2	182.5	180.3	179.9	186.0	189.9
57.5°	307.8	278.1	231.4	193.9	188.2	175.1	167.2	165.5	166.8	172.5	176.4
60°	264.2	240.1	207.4	173.8	169.4	158.1	151.9	151.5	152.8	159.4	163.3
62.5°	224.9	206.5	181.6	155.4	152.4	142.3	136.7	137.5	138.8	145.4	148.9
65°	191.2	175.1	156.3	137.1	133.2	126.2	122.3	122.7	125.3	131.0	134.5
67.5°	158.5	145.4	134.9	119.6	116.6	110.5	107.4	109.2	110.5	116.1	119.6
70°	131.0	120.5	112.6	101.3	99.1	93.9	91.7	93.9	95.2	100.0	104.4
72.5°	105.2	98.7	92.6	84.3	82.1	78.6	78.2	79.0	81.2	86.0	87.8
75°	81.6	78.2	72.9	67.7	66.4	64.6	64.2	65.1	67.2	69.9	71.6
77.5°	62.0	58.9	55.0	52.8	51.1	50.2	50.6	52.0	52.8	55.5	56.8
80°	45.0	41.5	40.6	37.5	37.1	36.7	37.5	38.0	39.3	41.0	41.9
82.5°	29.7	27.1	26.2	25.8	25.3	24.9	26.2	26.6	27.5	28.8	29.3
85°	16.2	15.3	15.3	14.8	15.3	16.2	16.2	16.6	16.6	17.0	16.6
87.5°	7.4	6.5	7.0	7.0	7.0	7.4	7.4	7.9	7.9	7.9	7.4
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°	940.9	940.9	940.9
2.5°	837.9	834.8	822.6
5°	714.3	703.8	700.3
7.5°	620.0	619.1	600.8
10°	540.1	541.4	524.8
12.5°	489.9	479.0	477.7
15°	447.1	437.1	435.3
17.5°	415.2	409.1	407.4
20°	391.2	387.7	384.7
22.5°	372.0	367.6	365.0
25°	352.8	348.9	348.0
27.5°	336.2	331.4	331.4
30°	319.2	316.1	314.8
32.5°	303.9	301.3	301.3
35°	289.0	287.7	286.0
37.5°	275.5	275.5	274.6
40°	262.4	263.7	263.7
42.5°	251.1	252.4	252.4
45°	238.8	241.0	241.9
47.5°	226.6	230.1	231.0
50°	215.7	218.3	218.7
52.5°	203.9	207.0	209.1
55°	191.7	194.7	196.0
57.5°	178.6	181.6	182.1
60°	164.2	167.2	168.1
62.5°	151.1	152.8	153.7
65°	134.9	137.5	139.3
67.5°	120.1	122.3	122.3
70°	103.9	104.8	106.1
72.5°	88.6	89.1	89.1
75°	72.0	72.9	73.4
77.5°	56.8	57.2	57.2
80°	41.9	41.5	41.5
82.5°	29.3	27.9	27.9
85°	16.6	16.2	16.6
87.5°	7.4	7.4	7.4
90°	0.0	0.0	0.0

(END OF REPORT)