

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: P646674

Luminaire Tested: S123RDR-S1165D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646674
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDR-S1165D940-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

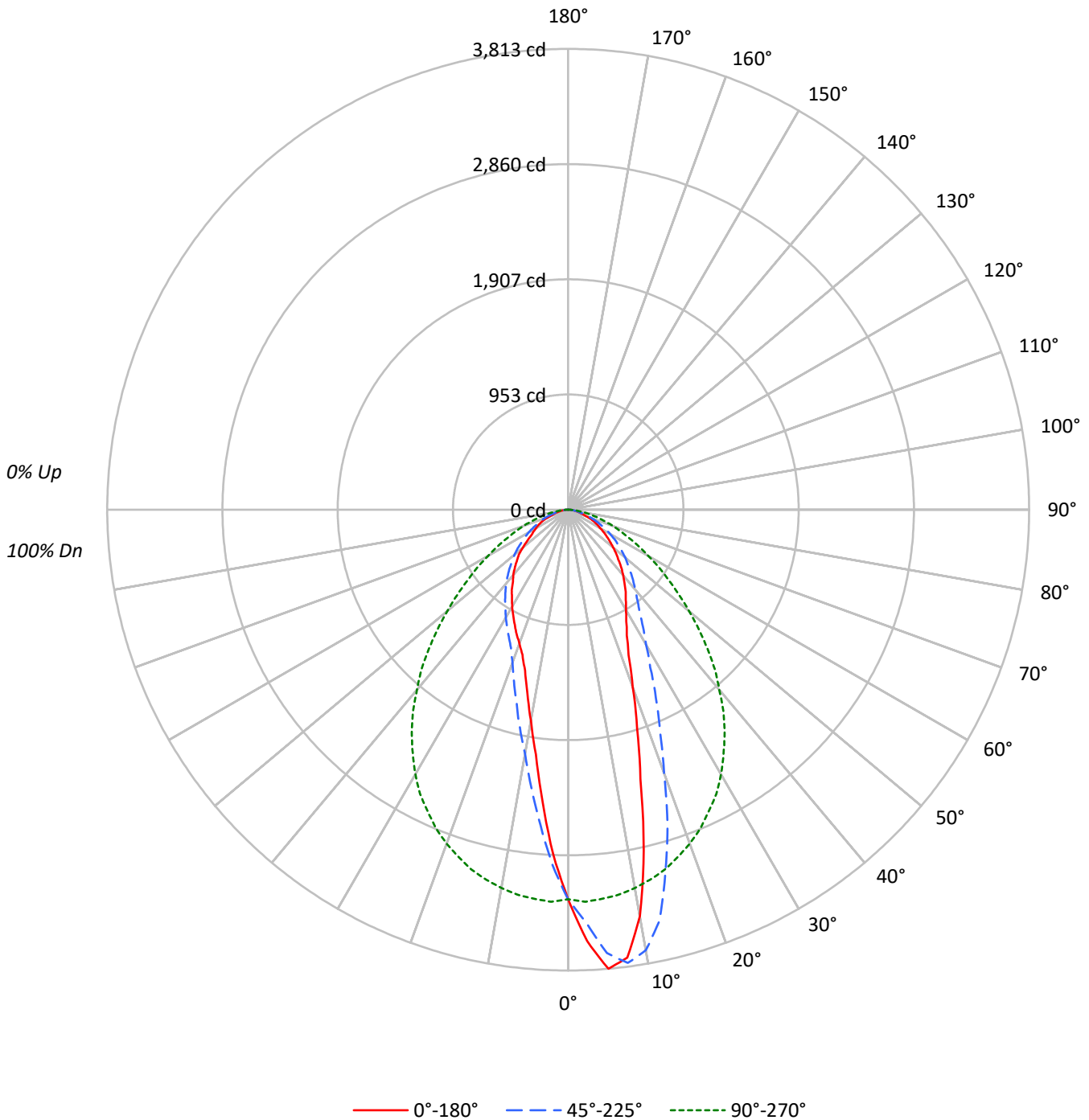
Lumens per Lamp: N/A
Luminaire Lumens: 4270.4 lumens
Efficiency: N/A
Efficacy: 106.5 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 40.1
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	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					100			
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69					67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61					59				
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54					53				
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49					47				
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45					43				
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41					39				
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38					36				
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35					33				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	38838	38838	38838	38838	38838
5°	46117	44550	39083	31698	29332
10°	41783	45275	38888	25095	21716
15°	28768	38775	38478	20607	17178
20°	20013	29740	37704	17268	15098
25°	15250	22823	36581	15427	13916
30°	13276	17947	35175	14342	12889
35°	12188	15105	33183	13375	11956
40°	11120	13554	30579	12555	11100
45°	10043	12409	27767	11666	10246
50°	9116	11519	24451	10852	9191
55°	8245	10577	21265	9911	7884
60°	7389	9618	18471	9078	7454
65°	6820	8553	15900	8063	7045
70°	5542	7310	13873	7310	5728
75°	4860	5908	11750	6089	5047
80°	4399	4954	9631	5135	4767
85°	4023	4203	7313	4562	4382

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 29299 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.8	6.9
10°-20°	679.7	15.9
20°-30°	779.8	18.3
30°-40°	768.1	18.0
40°-50°	677.0	15.9
50°-60°	521.0	12.2
60°-70°	342.6	8.0
70°-80°	166.4	3.9
80°-90°	42.0	1.0
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°	1753.3	41.1
0°-40°	2521.4	59.0
0°-60°	3719.5	87.1
0°-90°	4270.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4270.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3223	3223	3223	3223	3223	
5°	3813	3683	3231	2621	2425	348
15°	2306	3108	3085	1652	1377	651
25°	1147	1717	2752	1160	1047	542
35°	829	1027	2256	909	813	517
45°	589	728	1630	685	601	458
55°	392	504	1012	472	375	352
65°	239	300	558	283	247	234
75°	104	127	252	131	108	112
85°	29	30	53	33	32	33
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°	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3
2.5°	3572.2	3549.8	3543.2	3535.2	3522.0	3474.4	3420.3	3425.5	3418.9	3378.0	3355.5
5°	3812.8	3815.4	3808.8	3803.5	3781.1	3722.9	3683.3	3659.5	3609.2	3532.6	3508.8
7.5°	3738.8	3781.1	3789.0	3798.2	3810.1	3796.9	3782.4	3773.1	3732.2	3648.9	3610.6
10°	3415.0	3412.3	3459.9	3498.2	3601.3	3674.0	3700.4	3738.8	3773.1	3715.0	3672.7
12.5°	2886.3	2890.3	3046.3	3046.3	3179.7	3364.8	3483.7	3564.3	3712.3	3716.3	3691.2
15°	2306.2	2370.9	2509.7	2538.8	2710.6	2959.0	3108.4	3274.9	3561.7	3651.5	3646.3
17.5°	1893.8	1921.6	2055.1	2093.4	2245.4	2526.9	2733.0	2933.9	3335.7	3524.7	3559.0
20°	1560.8	1585.9	1682.4	1711.5	1864.8	2133.0	2319.4	2536.1	3062.1	3351.5	3412.3
22.5°	1303.1	1352.0	1416.7	1461.7	1548.9	1822.5	1982.4	2189.9	2744.9	3157.3	3228.6
25°	1147.1	1169.6	1225.1	1246.3	1352.0	1533.0	1716.7	1899.1	2463.4	2914.1	3039.6
27.5°	1041.4	1048.0	1089.0	1107.5	1170.9	1338.8	1470.9	1640.1	2176.7	2664.3	2811.0
30°	954.2	966.1	997.8	1001.8	1057.3	1176.2	1289.9	1445.8	1925.5	2422.5	2573.1
32.5°	886.8	893.4	919.8	927.8	963.4	1057.3	1149.8	1263.4	1693.0	2170.0	2343.2
35°	828.6	830.0	849.8	860.4	892.1	970.0	1026.9	1122.0	1506.6	1961.2	2113.2
37.5°	762.6	771.8	786.3	795.6	823.3	886.8	938.3	1012.3	1334.8	1763.0	1904.4
40°	707.0	715.0	732.2	736.1	761.2	819.4	861.7	927.8	1186.8	1572.7	1716.7
42.5°	651.5	656.8	674.0	681.9	709.7	755.9	794.3	845.8	1069.2	1403.5	1544.9
45°	589.4	602.6	621.1	625.1	651.5	699.1	728.2	775.8	963.4	1256.8	1382.4
47.5°	537.9	544.5	560.4	567.0	597.4	639.6	670.0	711.0	872.2	1123.3	1246.3
50°	486.3	489.0	503.5	512.8	536.6	585.5	614.5	651.5	789.0	1015.0	1100.9
52.5°	437.4	444.1	458.6	465.2	481.1	531.3	557.7	596.0	709.7	904.0	989.9
55°	392.5	396.5	407.0	415.0	433.5	477.1	503.5	536.6	641.0	802.2	877.5
57.5°	350.2	355.5	363.4	370.0	387.2	425.6	452.0	485.0	576.2	709.7	767.8
60°	306.6	313.2	322.5	325.1	341.0	375.3	399.1	428.2	510.1	623.8	675.3
62.5°	274.9	276.2	284.1	288.1	297.4	325.1	350.2	378.0	450.7	540.5	582.8
65°	239.2	243.2	247.1	249.8	257.7	281.5	300.0	321.1	392.5	470.5	499.6
67.5°	202.2	206.2	212.8	215.4	222.0	237.9	253.7	274.9	334.4	400.4	426.9
70°	157.3	157.3	167.8	173.1	183.7	195.6	207.5	226.0	277.5	334.4	354.2
72.5°	128.2	129.5	130.8	130.8	140.1	159.9	166.5	178.4	219.4	273.6	290.7
75°	104.4	105.7	107.0	108.4	109.7	116.3	126.9	137.4	167.8	207.5	223.3
77.5°	83.3	84.6	85.9	85.9	88.5	91.2	93.8	99.1	120.3	149.3	162.6
80°	63.4	64.8	66.1	66.1	67.4	70.0	71.4	74.0	80.6	100.4	107.0
82.5°	46.3	46.3	46.3	47.6	48.9	48.9	51.5	51.5	55.5	60.8	64.8
85°	29.1	29.1	30.4	30.4	30.4	31.7	30.4	31.7	33.0	34.4	37.0
87.5°	13.2	11.9	13.2	13.2	13.2	14.5	14.5	14.5	14.5	15.9	15.9
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°	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3
2.5°	3293.4	3247.1	3169.2	3120.3	3101.8	3044.9	2990.7	2945.8	2923.3	2920.7	2879.7
5°	3358.1	3231.3	3070.0	2935.2	2903.5	2804.4	2676.2	2620.7	2548.0	2518.9	2484.6
7.5°	3411.0	3212.8	2974.9	2771.4	2711.9	2562.6	2398.7	2326.0	2270.5	2183.3	2131.7
10°	3448.0	3178.4	2858.6	2595.6	2511.0	2336.6	2138.3	2051.1	1999.6	1899.1	1858.1
12.5°	3462.6	3134.8	2742.3	2413.2	2339.2	2131.7	1937.4	1847.6	1770.9	1679.7	1640.1
15°	3457.3	3084.6	2623.3	2245.4	2152.9	1942.7	1736.6	1652.0	1580.6	1489.4	1437.9
17.5°	3421.6	3013.2	2493.8	2082.8	1994.3	1777.5	1568.7	1490.7	1427.3	1338.8	1299.1
20°	3362.1	2940.5	2380.2	1934.8	1834.4	1626.9	1430.0	1346.7	1291.2	1243.6	1214.5
22.5°	3280.2	2854.6	2241.4	1788.1	1700.9	1492.1	1303.1	1235.7	1202.6	1164.3	1143.2
25°	3155.9	2751.5	2115.9	1665.2	1578.0	1370.5	1205.3	1160.4	1127.3	1102.2	1079.7
27.5°	3022.5	2652.4	1990.3	1541.0	1459.0	1260.8	1128.6	1094.3	1065.2	1033.5	1013.7
30°	2867.8	2528.2	1871.4	1431.3	1352.0	1172.2	1062.6	1030.8	1007.0	972.7	952.9
32.5°	2685.5	2392.1	1760.4	1325.5	1251.5	1095.6	1001.8	967.4	947.6	914.5	894.7
35°	2496.5	2255.9	1638.8	1227.8	1160.4	1028.2	942.3	909.3	888.1	855.1	835.2
37.5°	2311.5	2110.6	1530.4	1141.8	1081.1	960.8	880.2	852.4	832.6	798.2	774.4
40°	2115.9	1944.1	1424.7	1061.2	1004.4	901.3	823.3	798.2	771.8	741.4	717.6
42.5°	1911.0	1797.4	1326.9	989.9	937.0	843.2	766.5	740.1	717.6	681.9	671.4
45°	1719.4	1629.5	1223.8	914.5	872.2	785.0	711.0	684.6	659.5	629.1	618.5
47.5°	1548.9	1465.6	1130.0	848.5	806.2	728.2	655.5	627.8	609.3	585.5	569.6
50°	1373.1	1304.4	1026.9	783.7	744.1	667.4	597.4	578.9	557.7	528.6	516.7
52.5°	1209.3	1156.4	942.3	721.6	684.6	615.9	544.5	526.0	506.2	481.1	463.9
55°	1065.2	1012.3	845.8	651.5	623.8	559.0	495.6	471.8	455.9	426.9	405.7
57.5°	917.2	892.1	753.3	593.4	567.0	502.2	445.4	426.9	407.0	375.3	354.2
60°	795.6	766.5	667.4	530.0	504.8	450.7	395.2	376.7	358.1	327.8	318.5
62.5°	680.6	659.5	584.1	470.5	449.3	396.5	347.6	330.4	311.9	292.1	285.5
65°	576.2	557.7	500.9	409.7	392.5	346.3	301.3	282.8	270.9	261.7	255.1
67.5°	478.4	467.8	424.2	352.9	339.6	298.7	259.0	244.5	237.9	227.3	222.0
70°	389.9	393.8	354.2	301.3	286.8	253.7	219.4	207.5	199.6	190.3	179.7
72.5°	318.5	317.2	293.4	245.8	235.2	208.8	182.4	174.4	165.2	146.7	134.8
75°	247.1	252.4	230.0	203.5	193.0	166.5	141.4	130.8	121.6	115.0	111.0
77.5°	189.0	191.6	181.1	155.9	146.7	124.2	104.4	99.1	95.2	91.2	89.9
80°	134.8	138.8	128.2	112.3	104.4	85.9	75.3	74.0	72.7	70.0	68.7
82.5°	87.2	92.5	87.2	70.0	66.1	56.8	54.2	54.2	52.9	51.5	50.2
85°	47.6	52.9	50.2	41.0	38.3	35.7	34.4	33.0	33.0	33.0	33.0
87.5°	18.5	25.1	21.1	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
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):

	160°	170°	180°
0°	3223.3	3223.3	3223.3
2.5°	2870.5	2857.3	2852.0
5°	2475.3	2434.4	2425.1
7.5°	2115.9	2098.7	2041.8
10°	1851.5	1798.7	1774.9
12.5°	1613.7	1564.8	1556.8
15°	1423.3	1389.0	1377.1
17.5°	1297.8	1274.0	1259.5
20°	1205.3	1188.1	1177.5
22.5°	1135.2	1122.0	1114.1
25°	1073.1	1053.3	1046.7
27.5°	1009.7	992.5	985.9
30°	950.2	935.7	926.4
32.5°	888.1	870.9	865.6
35°	828.6	818.1	812.8
37.5°	770.5	757.3	749.3
40°	716.3	709.7	705.7
42.5°	667.4	655.5	654.2
45°	615.9	604.0	601.3
47.5°	567.0	556.4	555.1
50°	515.4	500.9	490.3
52.5°	453.3	440.1	430.8
55°	397.8	383.3	375.3
57.5°	351.5	344.9	341.0
60°	315.9	311.9	309.3
62.5°	284.1	280.2	280.2
65°	255.1	251.1	247.1
67.5°	219.4	211.5	210.1
70°	175.8	163.9	162.6
72.5°	133.5	132.2	129.5
75°	111.0	108.4	108.4
77.5°	89.9	87.2	87.2
80°	68.7	67.4	68.7
82.5°	50.2	50.2	48.9
85°	33.0	31.7	31.7
87.5°	15.9	15.9	15.9
90°	0.0	0.0	0.0

(END OF REPORT)