

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: P646656

Luminaire Tested: S123DR-S775D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2019
Report Number: P646656
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-S775D940-X4F0-XX-UDD-G-W
Description: DEFINE 3 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: 3087.5 lumens
Efficiency: N/A
Efficacy: 120.1 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

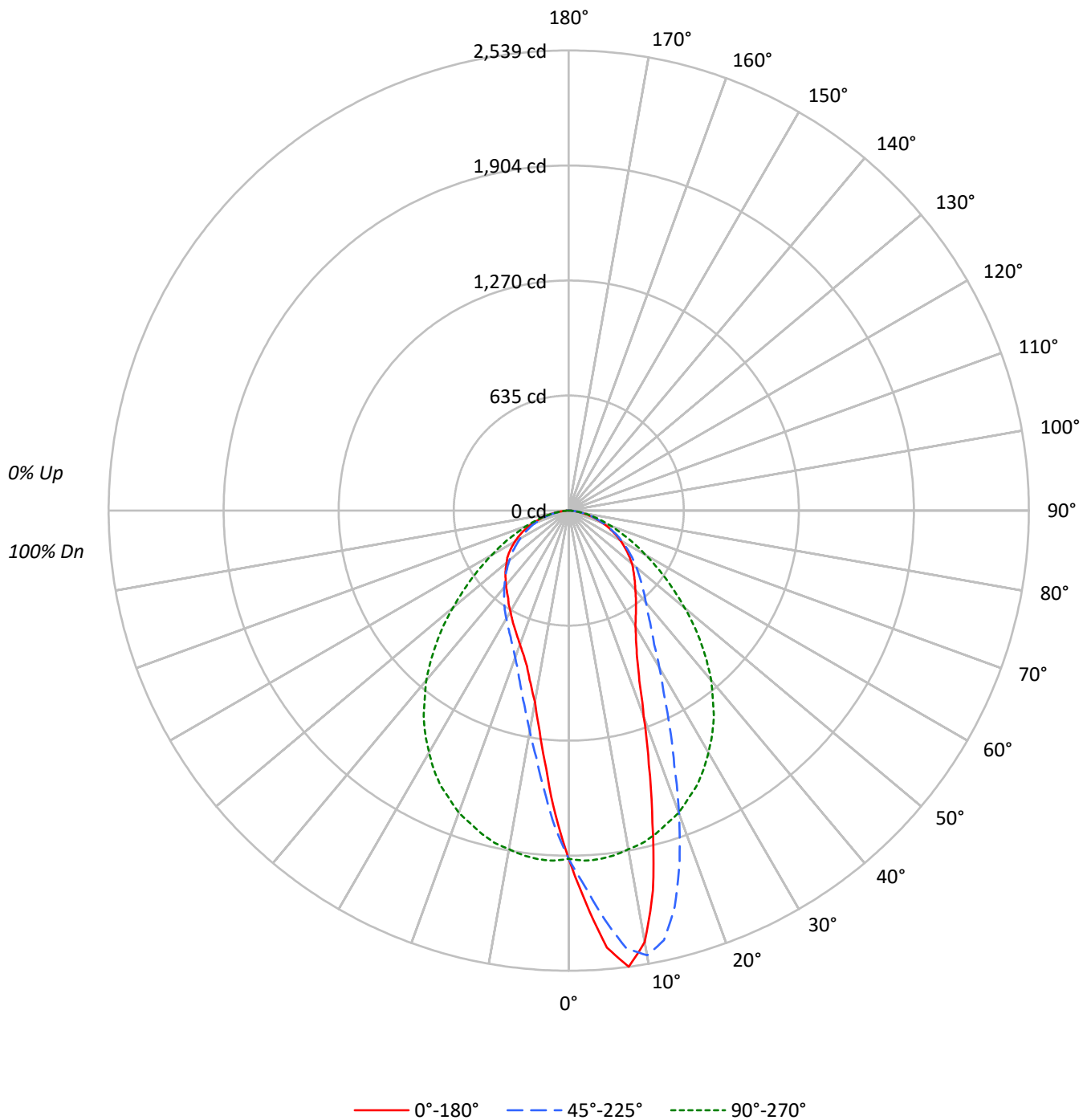
Input Watts (W): 25.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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°	23154	23154	23154	23154	23154
5°	29282	27385	23361	18734	17300
10°	29566	30482	23206	15132	13114
15°	22269	28209	23047	12681	11090
20°	15516	22811	22753	11057	10073
25°	11831	17499	22251	10136	9449
30°	10236	13908	21451	9578	8945
35°	9496	11647	20527	9129	8592
40°	8991	10421	19229	8711	8472
45°	8692	9679	17580	8341	8418
50°	8542	9144	15630	8023	8373
55°	8224	8636	13711	7737	8411
60°	7928	8167	11818	7456	8273
65°	7450	7652	10195	7145	8111
70°	6880	7099	8670	6753	7634
75°	6229	6434	7430	6187	6974
80°	5135	5509	5877	5385	5877
85°	4065	4438	4313	4687	4687

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°

Vertical Angle: 45°

Luminance: 20073 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	181.7	5.9
10°-20°	452.0	14.6
20°-30°	535.1	17.3
30°-40°	537.7	17.4
40°-50°	493.1	16.0
50°-60°	407.0	13.2
60°-70°	288.0	9.3
70°-80°	153.8	5.0
80°-90°	39.0	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°	1168.8	37.9
0°-40°	1706.5	55.3
0°-60°	2606.7	84.4
0°-90°	3087.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3087.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1922	1922	1922	1922	1922	
5°	2421	2264	1931	1549	1430	231
15°	1785	2261	1848	1017	889	493
25°	890	1316	1674	762	711	420
35°	646	792	1396	621	584	406
45°	510	568	1032	490	494	395
55°	392	411	653	368	400	350
65°	261	268	358	251	284	260
75°	134	138	160	133	150	141
85°	29	32	31	34	34	35
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°	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6
2.5°	2166.0	2161.5	2139.2	2124.9	2128.5	2096.4	2076.8	2060.7	2050.0	2024.2	2010.8
5°	2421.0	2433.5	2419.2	2412.1	2375.5	2317.6	2264.1	2252.5	2202.5	2141.0	2119.6
7.5°	2538.7	2545.8	2536.9	2536.9	2525.3	2473.6	2436.2	2406.7	2321.1	2241.8	2205.2
10°	2416.5	2432.6	2467.4	2483.4	2506.6	2499.5	2491.4	2479.8	2421.9	2330.0	2288.1
12.5°	2148.1	2167.8	2237.3	2247.1	2326.5	2403.2	2428.1	2456.7	2462.0	2384.4	2339.0
15°	1785.2	1839.6	1902.9	1933.2	2034.0	2195.4	2261.4	2339.0	2430.8	2398.7	2363.0
17.5°	1470.4	1490.9	1558.7	1622.9	1723.7	1910.0	2032.2	2148.1	2345.2	2377.3	2355.0
20°	1210.1	1228.8	1317.9	1313.5	1447.2	1656.8	1779.0	1912.7	2203.4	2307.7	2303.3
22.5°	1016.6	1046.0	1095.9	1123.6	1219.9	1406.2	1522.2	1688.9	2042.0	2207.0	2224.8
25°	889.9	911.3	941.6	965.7	1040.6	1194.0	1316.2	1453.5	1838.7	2075.0	2119.6
27.5°	803.4	812.3	842.7	856.9	906.9	1038.8	1133.4	1259.1	1650.6	1927.0	1989.4
30°	735.7	741.9	768.7	773.1	812.3	907.8	999.6	1102.2	1466.9	1774.5	1845.8
32.5°	688.4	692.9	713.4	715.2	744.6	814.1	878.3	974.6	1293.0	1611.3	1699.6
35°	645.6	648.3	663.4	667.9	686.6	739.2	791.8	865.9	1154.8	1464.2	1561.4
37.5°	608.1	611.7	620.6	626.0	641.1	683.1	718.7	780.2	1021.9	1310.8	1418.7
40°	571.6	577.8	584.1	584.1	601.0	633.1	662.5	713.4	907.8	1177.1	1272.5
42.5°	540.4	546.6	549.3	550.2	559.1	588.5	613.5	648.3	821.3	1058.5	1152.1
45°	510.1	512.7	515.4	517.2	523.4	549.3	568.0	601.0	739.2	948.8	1039.7
47.5°	482.4	482.4	484.2	486.9	491.3	510.1	526.1	550.2	668.8	850.7	925.6
50°	455.7	455.7	453.0	454.8	457.4	471.7	487.8	507.4	602.8	760.6	827.5
52.5°	423.6	423.6	424.5	421.8	424.5	436.9	449.4	469.0	546.6	677.7	734.8
55°	391.5	395.0	392.4	390.6	394.1	402.2	411.1	428.0	494.0	611.7	657.2
57.5°	359.4	361.1	360.3	362.9	361.1	368.3	376.3	387.9	446.7	537.7	580.5
60°	329.0	329.0	327.3	329.0	329.0	332.6	338.9	350.4	398.6	474.4	510.1
62.5°	295.2	296.0	296.9	296.0	295.2	299.6	305.0	313.0	356.7	412.9	439.6
65°	261.3	262.2	264.8	263.9	263.1	267.5	268.4	277.3	310.3	358.5	378.1
67.5°	231.0	229.2	230.1	231.8	232.7	233.6	235.4	244.3	267.5	306.7	322.8
70°	195.3	197.1	196.2	198.9	197.1	199.7	201.5	207.8	230.1	255.9	266.6
72.5°	163.2	164.1	164.1	166.8	165.9	168.5	170.3	173.0	189.0	212.2	216.7
75°	133.8	133.8	135.5	136.4	136.4	136.4	138.2	140.0	153.4	167.6	172.1
77.5°	101.7	106.1	105.2	106.1	107.0	109.7	107.9	111.5	119.5	127.5	130.2
80°	74.0	74.0	74.9	75.8	77.6	79.4	79.4	82.9	86.5	91.0	93.6
82.5°	47.3	48.2	50.8	51.7	52.6	55.3	55.3	55.3	59.7	61.5	61.5
85°	29.4	27.6	29.4	30.3	31.2	32.1	32.1	33.9	34.8	35.7	35.7
87.5°	14.3	14.3	14.3	14.3	15.2	15.2	15.2	15.2	16.1	16.1	16.1
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°	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6	1921.6
2.5°	1966.2	1933.2	1884.2	1844.1	1845.8	1809.3	1782.5	1747.8	1737.1	1726.4	1712.1
5°	2007.2	1931.4	1829.8	1748.6	1723.7	1663.0	1586.4	1548.9	1526.6	1487.4	1472.2
7.5°	2058.1	1919.0	1763.8	1637.2	1609.5	1508.8	1417.8	1373.2	1331.3	1303.7	1269.8
10°	2091.1	1896.7	1696.9	1529.3	1502.5	1387.5	1268.9	1236.8	1184.2	1150.3	1118.2
12.5°	2116.0	1879.7	1628.3	1433.0	1389.3	1277.8	1158.3	1114.6	1076.3	1027.3	1004.1
15°	2138.3	1847.6	1557.8	1332.2	1286.7	1166.4	1055.8	1016.6	981.8	939.0	918.5
17.5°	2130.3	1808.4	1480.2	1243.0	1197.6	1079.0	972.9	928.3	905.1	867.6	853.4
20°	2120.5	1774.5	1407.1	1158.3	1108.4	997.8	894.4	862.3	839.1	815.0	802.5
22.5°	2089.3	1721.0	1333.1	1080.8	1033.5	922.9	834.6	807.9	790.1	773.1	762.4
25°	2036.7	1673.7	1260.9	1003.2	965.7	862.3	787.4	762.4	750.8	733.9	724.1
27.5°	1971.6	1611.3	1188.7	939.9	897.1	805.2	741.0	725.0	712.5	699.1	689.3
30°	1889.5	1541.8	1118.2	878.3	839.1	758.0	702.7	688.4	676.8	663.4	651.8
32.5°	1785.2	1471.3	1052.2	821.3	788.3	717.8	667.0	655.4	645.6	629.5	623.3
35°	1668.4	1395.5	987.1	766.9	735.7	674.1	632.2	620.6	610.8	597.4	592.1
37.5°	1549.8	1305.5	922.9	720.5	692.9	637.6	597.4	585.9	576.9	565.3	562.7
40°	1424.1	1222.5	859.6	673.2	649.2	601.9	562.7	553.8	544.8	537.7	535.9
42.5°	1297.4	1127.1	804.3	634.0	608.1	564.5	528.8	519.0	513.6	510.1	511.0
45°	1178.0	1031.7	747.3	588.5	570.7	530.6	497.6	489.5	485.1	482.4	486.0
47.5°	1048.7	934.5	693.8	550.2	532.4	496.7	465.5	458.3	456.6	455.7	461.9
50°	934.5	833.8	635.8	511.0	495.8	459.2	434.3	428.0	426.2	428.9	437.8
52.5°	826.6	740.1	583.2	474.4	459.2	426.2	403.1	398.6	397.7	403.9	412.9
55°	719.6	652.7	526.1	434.3	419.1	390.6	372.7	368.3	367.4	379.9	387.9
57.5°	628.7	568.0	472.6	395.9	384.3	357.6	341.5	338.0	340.6	352.2	360.3
60°	539.5	490.4	423.6	354.9	346.0	322.8	310.3	309.4	312.1	325.5	333.5
62.5°	459.2	421.8	371.0	317.4	311.2	290.7	279.1	280.9	283.6	296.9	304.1
65°	390.6	357.6	319.2	280.0	272.0	257.7	249.7	250.6	255.9	267.5	274.6
67.5°	323.7	296.9	275.5	244.3	238.1	225.6	219.4	222.9	225.6	237.2	244.3
70°	267.5	246.1	230.1	206.9	202.4	191.7	187.3	191.7	194.4	204.2	213.1
72.5°	214.9	201.5	189.0	172.1	167.6	160.5	159.6	161.4	165.9	175.7	179.2
75°	166.8	159.6	148.9	138.2	135.5	132.0	131.1	132.9	137.3	142.7	146.2
77.5°	126.6	120.4	112.4	107.9	104.3	102.5	103.4	106.1	107.9	113.2	115.9
80°	91.8	84.7	82.9	76.7	75.8	74.9	76.7	77.6	80.3	83.8	85.6
82.5°	60.6	55.3	53.5	52.6	51.7	50.8	53.5	54.4	56.2	58.9	59.7
85°	33.0	31.2	31.2	30.3	31.2	33.0	33.0	33.9	33.9	34.8	33.9
87.5°	15.2	13.4	14.3	14.3	14.3	15.2	15.2	16.1	16.1	16.1	15.2
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°	1921.6	1921.6	1921.6
2.5°	1711.2	1705.0	1680.0
5°	1458.8	1437.4	1430.3
7.5°	1266.2	1264.4	1227.0
10°	1103.0	1105.7	1071.8
12.5°	1000.5	978.2	975.5
15°	913.1	892.6	889.0
17.5°	848.0	835.5	832.0
20°	799.0	791.8	785.6
22.5°	759.7	750.8	745.5
25°	720.5	712.5	710.7
27.5°	686.6	676.8	676.8
30°	651.8	645.6	642.9
32.5°	620.6	615.3	615.3
35°	590.3	587.6	584.1
37.5°	562.7	562.7	560.9
40°	535.9	538.6	538.6
42.5°	512.7	515.4	515.4
45°	487.8	492.2	494.0
47.5°	462.8	469.9	471.7
50°	440.5	445.9	446.7
52.5°	416.4	422.7	427.1
55°	391.5	397.7	400.4
57.5°	364.7	371.0	371.8
60°	335.3	341.5	343.3
62.5°	308.5	312.1	313.9
65°	275.5	280.9	284.5
67.5°	245.2	249.7	249.7
70°	212.2	214.0	216.7
72.5°	181.0	181.9	181.9
75°	147.1	148.9	149.8
77.5°	115.9	116.8	116.8
80°	85.6	84.7	84.7
82.5°	59.7	57.1	57.1
85°	33.9	33.0	33.9
87.5°	15.2	15.2	15.2
90°	0.0	0.0	0.0

(END OF REPORT)