

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P243324

Luminaire Tested: **S123DR-H1000D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243324
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H1000D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3734.8 lumens
Efficiency: N/A
Efficacy: 118.6 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

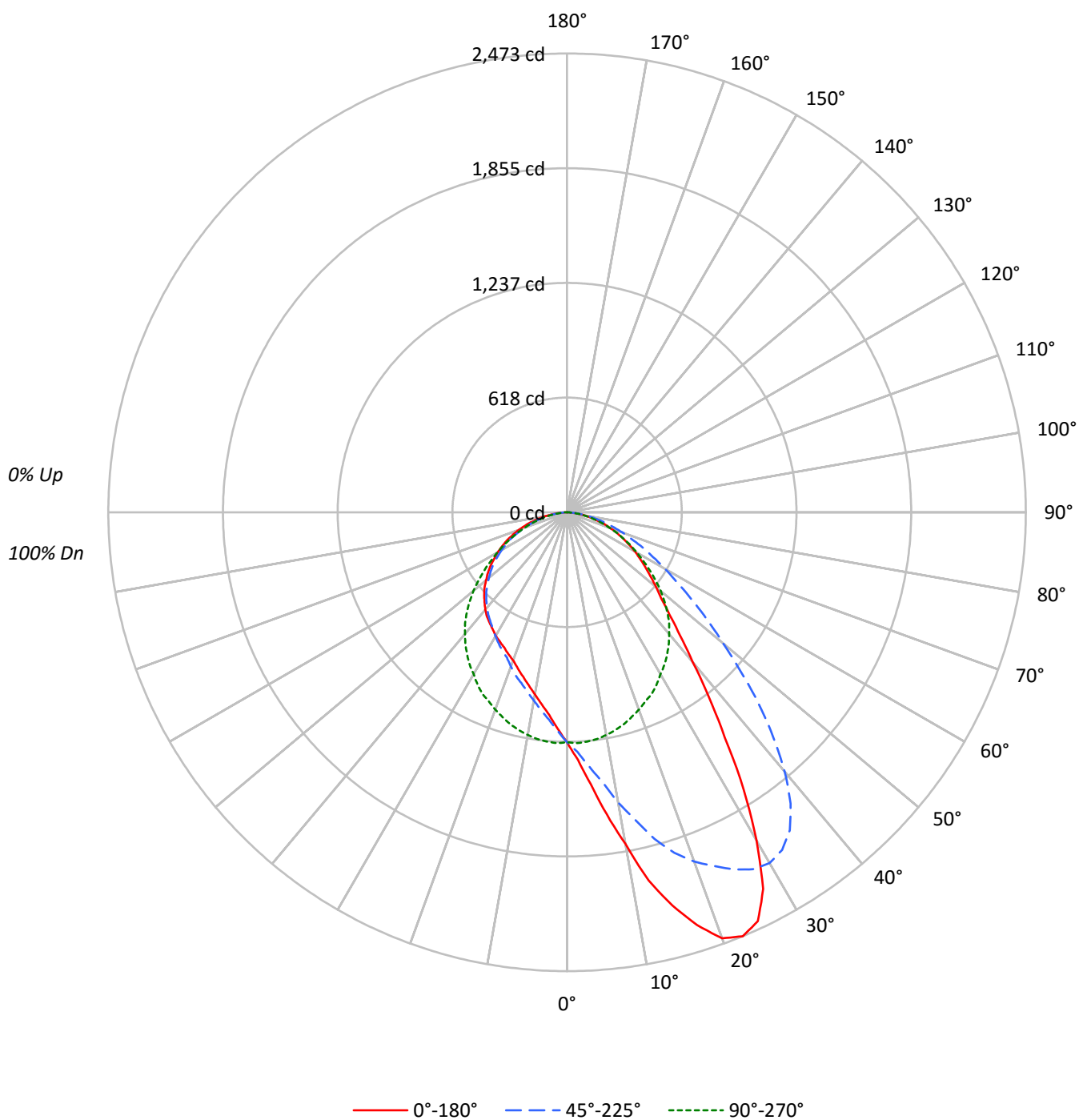
Input Watts (W): 31.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72		72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	15021	15021	15021
5°	17895	15093	13338
10°	22348	15001	12264
15°	27542	14839	11506
20°	31516	14602	10950
25°	32525	14442	10746
30°	28575	14097	10753
35°	21931	13887	10764
40°	16682	13548	10845
45°	13422	13112	10835
50°	11812	12412	10743
55°	10888	11500	10672
60°	10262	10524	10453
65°	9537	9617	10254
70°	8729	8626	9813
75°	7760	7521	9142
80°	6499	6219	7999
85°	4576	4492	5994

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.9	3.3
10°-20°	391.4	10.5
20°-30°	646.5	17.3
30°-40°	739.9	19.8
40°-50°	670.5	18.0
50°-60°	541.8	14.5
60°-70°	377.5	10.1
70°-80°	198.0	5.3
80°-90°	47.2	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°	1159.9	31.1
0°-40°	1899.8	50.9
0°-60°	3112.1	83.3
0°-90°	3734.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3734.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1239	1239	1239	1239	1239	
5°	1471	1375	1240	1122	1096	151
15°	2195	1822	1182	953	917	625
25°	2432	2123	1080	823	804	1087
35°	1482	2092	938	720	727	939
45°	783	1462	765	616	632	617
55°	515	820	544	483	505	463
65°	332	448	335	331	358	330
75°	166	204	161	167	195	177
85°	33	42	32	36	43	42
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2
2.5°	1334.6	1337.4	1332.9	1335.7	1328.9	1324.9	1318.7	1315.8	1302.2	1292.6	1289.2
5°	1470.7	1470.7	1471.9	1465.1	1457.1	1442.9	1424.2	1412.3	1398.7	1375.4	1363.5
7.5°	1642.1	1633.6	1627.9	1615.4	1604.7	1581.4	1561.0	1536.6	1504.8	1466.2	1445.8
10°	1815.7	1824.8	1819.1	1806.1	1778.3	1740.3	1710.2	1675.0	1625.7	1588.2	1534.9
12.5°	2032.5	2020.6	2011.5	1991.6	1961.0	1920.7	1874.2	1822.0	1758.4	1696.6	1637.0
15°	2194.8	2196.5	2195.9	2169.8	2139.7	2085.3	2042.1	1955.3	1874.7	1822.5	1723.8
17.5°	2332.1	2339.5	2330.9	2291.8	2265.1	2232.8	2177.7	2081.3	2008.1	1923.5	1814.6
20°	2443.3	2444.4	2430.8	2401.9	2371.2	2334.9	2262.3	2188.5	2117.0	2003.5	1899.7
22.5°	2472.8	2475.6	2472.8	2460.3	2435.4	2396.8	2342.3	2274.2	2184.0	2063.1	1966.7
25°	2431.9	2430.2	2439.9	2432.5	2431.4	2418.9	2383.2	2328.1	2239.0	2122.7	2000.1
27.5°	2289.0	2277.0	2301.4	2333.2	2337.8	2357.6	2358.2	2332.7	2268.5	2169.2	2035.9
30°	2041.6	2052.9	2064.8	2131.2	2168.1	2219.7	2264.6	2281.0	2256.6	2183.4	2058.6
32.5°	1772.6	1808.9	1842.4	1888.4	1942.3	2029.7	2100.6	2163.0	2189.7	2157.3	2058.6
35°	1482.1	1501.4	1554.2	1612.6	1690.3	1758.4	1899.1	1989.9	2071.1	2092.1	2032.5
37.5°	1255.1	1272.7	1290.9	1336.3	1423.6	1537.1	1653.5	1772.6	1892.9	1979.2	1975.7
40°	1054.3	1058.2	1074.1	1113.3	1185.9	1286.9	1408.9	1552.5	1708.5	1825.9	1875.3
42.5°	899.9	899.9	919.8	965.2	1007.2	1080.9	1199.0	1325.5	1496.3	1647.2	1752.8
45°	783.0	784.2	800.1	832.4	865.3	923.2	1010.6	1129.7	1305.6	1461.7	1608.6
47.5°	687.7	698.5	707.6	724.6	757.5	808.6	872.1	973.7	1099.1	1269.3	1440.7
50°	626.4	628.7	635.5	645.7	671.3	704.7	759.8	836.9	948.2	1099.1	1272.1
52.5°	566.3	566.3	573.1	585.6	600.3	627.6	667.3	731.4	814.8	951.6	1107.0
55°	515.2	516.9	518.1	528.3	540.7	561.2	592.4	634.4	711.0	820.5	956.1
57.5°	465.3	471.5	469.8	477.8	486.8	501.6	523.7	560.0	618.5	701.9	823.9
60°	423.3	422.2	425.0	428.4	434.6	444.9	465.3	492.0	540.7	610.5	710.4
62.5°	375.6	374.5	377.9	381.9	387.5	396.1	410.8	431.2	469.8	522.0	608.8
65°	332.5	331.4	333.1	335.3	341.6	348.4	359.7	376.8	402.3	448.3	514.6
67.5°	289.4	289.4	290.5	292.8	296.8	301.9	310.9	321.2	346.7	377.3	429.5
70°	246.3	246.8	246.8	249.1	252.5	256.5	263.8	272.9	288.8	316.1	358.0
72.5°	208.8	208.8	207.7	208.8	211.1	212.8	217.3	225.8	237.7	257.6	289.4
75°	165.7	168.5	168.0	167.4	169.1	171.9	175.9	182.7	190.1	204.3	228.1
77.5°	127.1	128.8	128.8	129.4	131.1	133.3	134.5	141.3	148.1	156.6	174.2
80°	93.1	94.2	93.1	93.6	94.8	97.0	99.3	100.4	105.5	112.9	121.4
82.5°	62.4	60.7	63.0	62.4	63.6	64.1	65.3	65.8	69.2	73.8	79.4
85°	32.9	35.7	35.2	36.3	35.2	35.7	36.3	38.6	39.2	42.0	45.4
87.5°	12.5	13.6	13.6	13.6	13.6	13.6	14.8	15.3	16.5	17.0	18.2
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2
2.5°	1291.4	1286.3	1279.0	1271.0	1262.5	1254.0	1250.0	1244.9	1234.7	1224.5	1216.5
5°	1353.9	1339.7	1320.4	1306.2	1285.8	1266.5	1251.2	1240.4	1223.9	1204.1	1191.0
7.5°	1423.6	1398.1	1367.5	1336.3	1305.6	1276.7	1252.9	1232.4	1206.9	1182.5	1162.6
10°	1505.9	1456.6	1414.0	1368.6	1323.2	1282.4	1248.3	1218.8	1185.9	1156.4	1132.0
12.5°	1578.6	1521.2	1462.2	1398.1	1336.8	1284.1	1240.4	1201.8	1162.1	1128.0	1103.1
15°	1658.6	1578.0	1496.3	1423.6	1349.3	1284.6	1227.3	1182.5	1137.1	1098.5	1069.6
17.5°	1750.5	1642.7	1540.0	1435.6	1369.7	1286.3	1216.0	1157.0	1110.4	1071.9	1034.4
20°	1805.0	1697.7	1571.7	1464.5	1355.6	1269.9	1191.6	1132.0	1077.5	1033.3	1002.6
22.5°	1834.5	1721.5	1589.9	1479.8	1352.7	1256.8	1173.4	1103.1	1044.6	1000.4	965.7
25°	1875.9	1721.5	1599.5	1467.3	1357.3	1241.5	1147.3	1079.8	1018.5	967.4	931.1
27.5°	1894.6	1736.9	1600.7	1443.5	1330.0	1212.6	1117.2	1045.7	977.7	927.7	896.5
30°	1909.9	1739.7	1578.0	1424.8	1298.3	1180.2	1087.2	1007.2	943.6	896.0	863.0
32.5°	1911.1	1732.3	1547.3	1389.6	1255.7	1142.2	1051.4	976.0	909.6	859.1	826.7
35°	1900.8	1714.2	1512.2	1335.7	1206.3	1103.1	1012.3	938.5	871.0	822.8	789.8
37.5°	1874.7	1693.7	1479.3	1285.2	1147.9	1047.5	970.3	899.9	833.0	784.7	757.5
40°	1819.1	1660.8	1436.1	1231.3	1088.9	988.4	920.9	856.2	796.7	746.7	719.5
42.5°	1745.4	1611.5	1383.9	1174.0	1023.1	926.0	866.4	814.2	753.5	710.4	682.6
45°	1641.0	1544.5	1331.7	1113.8	957.8	862.5	808.0	764.9	712.7	669.6	645.2
47.5°	1522.9	1463.9	1264.2	1046.3	889.1	799.5	747.9	713.2	669.0	632.1	607.7
50°	1390.2	1368.0	1189.9	978.2	825.0	733.1	685.4	658.2	620.8	591.2	570.3
52.5°	1246.0	1259.7	1111.6	909.0	763.2	670.1	624.7	599.8	575.9	551.0	531.1
55°	1099.7	1132.0	1016.8	833.5	692.2	611.1	566.8	544.2	526.6	505.6	491.4
57.5°	962.3	1012.8	918.6	753.0	627.0	549.3	507.3	487.4	474.4	463.0	450.0
60°	829.0	887.4	817.6	677.5	561.7	490.8	453.4	434.1	427.8	419.3	406.8
62.5°	711.0	770.6	718.4	599.8	495.9	435.2	401.2	385.3	376.2	373.4	366.0
65°	600.3	655.9	616.2	518.6	433.5	379.6	349.5	335.3	330.2	329.7	324.0
67.5°	504.4	558.3	522.0	439.7	367.7	324.0	301.3	290.0	284.8	285.4	281.4
70°	415.9	453.9	432.4	367.7	312.1	273.5	255.9	243.4	239.5	239.5	238.3
72.5°	333.6	363.7	347.3	297.9	254.2	224.7	209.4	202.0	198.6	198.0	198.6
75°	261.0	287.1	272.4	233.8	200.9	178.7	165.7	160.6	158.9	157.7	158.3
77.5°	195.2	211.6	202.6	177.6	150.4	135.0	128.8	123.7	122.0	122.6	123.7
80°	137.9	147.0	141.9	126.0	107.8	97.6	93.1	89.1	87.4	89.1	89.1
82.5°	87.4	94.2	89.7	79.4	70.4	63.6	59.0	57.9	57.3	56.2	57.9
85°	47.7	51.1	48.8	45.4	39.2	36.3	32.9	32.3	32.3	32.3	32.3
87.5°	18.7	21.0	18.2	18.2	17.0	14.2	14.2	13.6	13.1	13.6	13.6
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2	1239.2
2.5°	1213.1	1205.8	1201.2	1195.0	1187.6	1178.0	1174.0	1178.0	1175.7	1171.7	1173.4
5°	1179.7	1170.0	1157.5	1147.3	1136.0	1121.8	1117.2	1115.0	1111.6	1109.9	1107.0
7.5°	1146.8	1132.6	1117.2	1103.1	1086.6	1074.1	1068.4	1064.5	1063.3	1054.8	1051.4
10°	1112.7	1095.1	1079.8	1060.5	1046.3	1029.9	1023.1	1018.5	1013.4	1007.7	1003.8
12.5°	1077.0	1059.4	1040.1	1021.9	1007.7	989.6	980.5	975.4	971.4	967.4	962.9
15°	1045.7	1028.2	1001.5	987.9	970.9	952.7	947.0	935.7	936.8	930.0	925.5
17.5°	1012.8	986.7	968.0	947.6	935.1	922.1	911.3	899.4	897.7	892.5	890.8
20°	976.0	948.7	935.7	914.7	897.7	884.6	875.0	873.8	870.4	863.0	860.2
22.5°	939.6	917.5	899.4	880.1	864.7	847.7	843.2	844.9	838.6	836.9	830.7
25°	906.7	887.4	864.7	846.6	834.1	823.3	817.1	814.8	812.5	810.8	808.0
27.5°	871.6	851.1	831.8	817.1	805.2	797.8	793.8	788.7	788.1	788.1	787.0
30°	836.4	818.2	805.2	786.4	775.7	771.1	767.7	766.0	767.7	767.7	768.3
32.5°	804.0	786.4	771.1	758.1	747.3	743.9	743.3	743.3	745.6	745.6	747.3
35°	770.6	753.0	738.8	729.7	720.6	720.1	720.6	721.8	724.6	725.2	727.4
37.5°	734.2	720.6	709.8	698.5	696.2	697.4	698.5	699.6	700.8	705.3	705.3
40°	700.8	690.5	679.8	672.4	668.4	671.3	673.0	673.5	676.9	679.8	682.0
42.5°	667.8	658.2	649.7	643.5	641.7	644.0	645.7	647.4	650.8	653.1	657.1
45°	631.0	624.7	617.3	612.2	612.8	616.2	616.2	621.9	624.2	625.3	628.1
47.5°	596.9	590.1	585.0	582.7	582.2	585.0	586.7	591.2	592.4	596.4	598.6
50°	560.6	555.5	551.5	548.7	549.3	550.4	554.4	558.9	560.0	564.6	568.6
52.5°	522.6	518.1	514.6	515.8	517.5	517.5	521.5	524.3	527.1	530.5	534.5
55°	485.1	478.9	479.5	477.8	479.5	483.4	485.1	489.7	492.0	493.7	499.3
57.5°	444.3	443.2	441.5	439.7	443.2	444.9	447.7	450.5	454.5	456.8	460.7
60°	402.3	400.6	400.6	402.9	404.0	407.4	411.9	413.6	414.8	419.3	424.4
62.5°	363.7	362.0	361.4	364.8	364.8	368.3	370.0	372.8	377.3	379.0	385.8
65°	322.3	321.2	321.2	324.0	324.6	330.8	330.8	330.8	333.6	339.9	343.3
67.5°	279.2	279.7	281.4	283.1	285.4	287.1	287.7	291.1	295.6	299.6	306.4
70°	236.0	238.9	242.3	241.7	243.4	246.3	246.8	250.2	254.2	259.3	267.3
72.5°	197.5	199.2	202.6	202.6	204.8	206.5	209.4	211.6	216.8	221.3	224.7
75°	158.9	159.4	162.3	164.0	165.7	166.8	169.7	173.6	176.5	180.4	185.5
77.5°	124.8	123.7	126.0	126.5	127.7	129.9	132.2	136.2	138.4	143.0	144.7
80°	88.5	90.8	91.4	91.9	93.1	95.9	97.6	99.3	101.6	105.5	107.2
82.5°	58.4	59.6	61.3	61.8	63.0	63.6	64.1	67.0	68.7	69.8	75.5
85°	34.0	35.7	34.6	34.6	35.7	36.3	38.6	38.6	40.9	39.7	42.6
87.5°	14.8	14.2	14.2	14.8	14.2	13.6	15.3	15.3	14.8	15.3	15.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P243324

CATALOG NUMBER: S123DR-H1000D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1239.2	1239.2	1239.2	1239.2
2.5°	1170.6	1170.6	1166.0	1167.7
5°	1101.4	1103.6	1098.0	1096.2
7.5°	1050.3	1048.0	1044.0	1044.0
10°	1000.4	998.1	996.4	996.4
12.5°	957.2	955.0	951.6	954.4
15°	918.6	919.2	916.9	916.9
17.5°	889.1	884.0	882.3	881.8
20°	854.0	855.1	852.8	848.9
22.5°	831.8	829.0	826.7	826.2
25°	809.1	806.3	805.7	803.5
27.5°	786.4	787.0	785.3	785.3
30°	767.7	769.4	767.7	768.3
32.5°	749.0	749.0	749.0	746.7
35°	728.6	729.1	728.6	727.4
37.5°	707.6	707.6	708.1	709.3
40°	684.3	684.3	685.4	685.4
42.5°	656.5	659.3	661.0	658.2
45°	631.5	632.1	632.7	632.1
47.5°	603.7	602.0	602.6	603.7
50°	569.1	573.1	573.1	569.7
52.5°	535.6	536.8	539.0	539.0
55°	502.7	503.3	503.9	505.0
57.5°	465.3	465.8	465.8	465.3
60°	427.8	431.2	430.7	431.2
62.5°	387.5	392.7	394.4	393.8
65°	349.5	350.7	353.5	357.5
67.5°	309.2	312.1	316.6	315.5
70°	269.5	273.5	274.6	276.9
72.5°	229.8	234.9	236.0	237.2
75°	191.2	193.5	195.8	195.2
77.5°	149.2	152.6	156.6	154.3
80°	111.8	112.3	115.8	114.6
82.5°	73.8	78.3	78.3	76.0
85°	43.1	43.1	43.1	43.1
87.5°	14.8	14.2	15.3	14.8
90°	0.0	0.0	0.0	0.0

(END OF REPORT)