

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: P332220-830

Luminaire Tested: **S123DIW-S1165D755U830-4F0-1E-UDD-F**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332220-830  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-5,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123DIW-S1165D755U830-4F0-1E-UDD-F  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1165 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
UPLIGHT 755 LUMENS PER FOOT, NO LENS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7333.2 lumens  
Efficiency: N/A  
Efficacy: 122.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: Semi-Direct

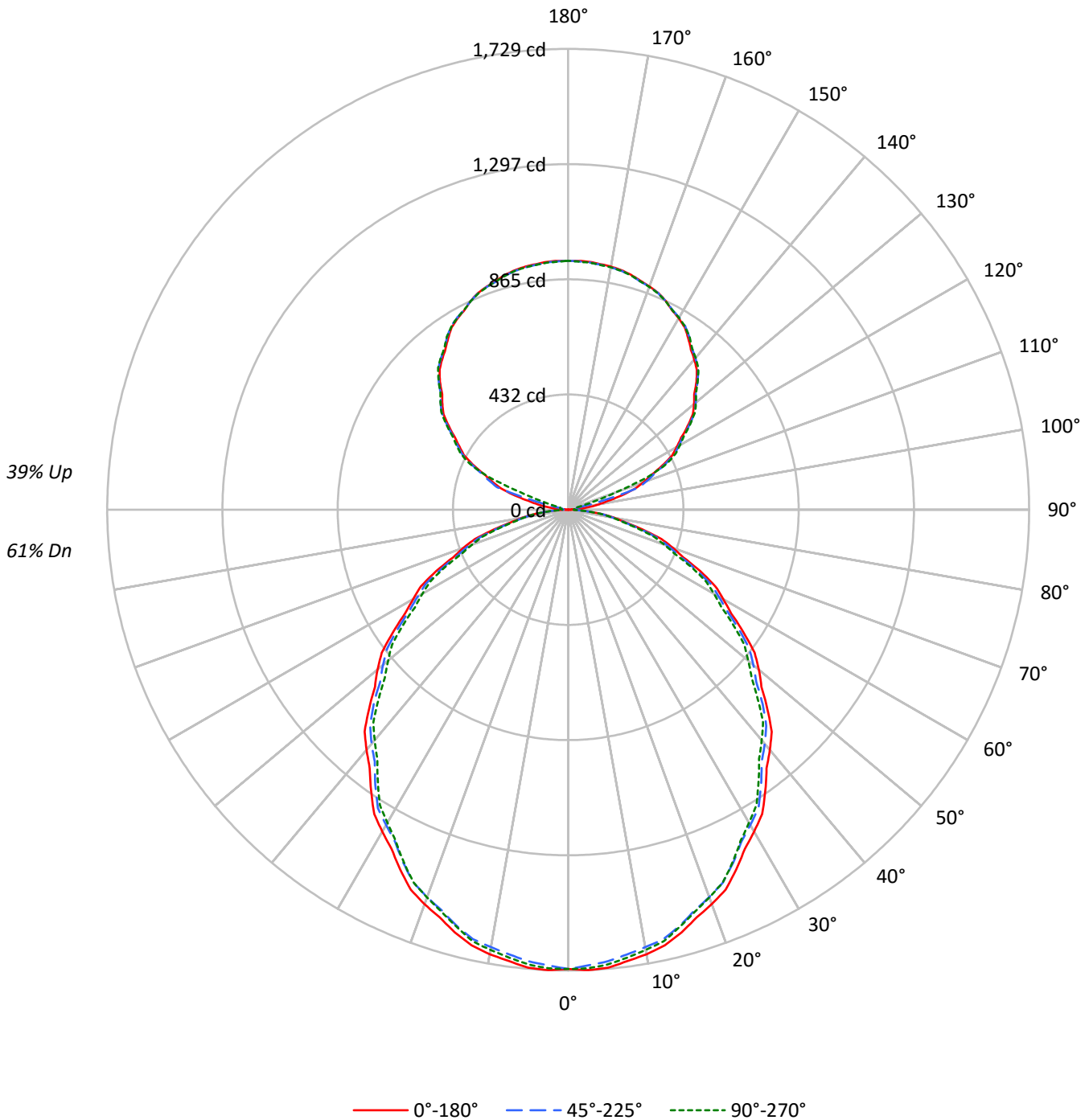
Input Watts (W): 59.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66	61
1	100	96	92	88	94	90	86	83	78	76	73	68	66	64	59	57	56	51
2	91	84	77	72	85	78	73	68	69	64	61	60	57	54	52	49	47	43
3	83	73	66	60	78	69	62	57	61	55	51	53	49	45	46	43	40	36
4	76	65	57	51	71	61	54	48	54	48	44	47	43	39	41	37	34	31
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30	27
6	64	52	44	38	60	49	42	36	44	37	33	38	33	30	33	29	26	24
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	27	24	21
8	55	43	35	29	52	41	33	28	36	30	26	32	27	23	28	24	21	19
9	52	39	32	26	48	37	30	25	33	27	23	29	25	21	26	22	19	17
10	48	36	29	24	45	34	27	23	31	25	21	27	22	19	24	20	17	15

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	18547	18547	18547
5°	18634	18377	18506
10°	18510	18218	18332
15°	18293	18013	18046
20°	18040	17718	17734
25°	17701	17368	17332
30°	17329	16978	16850
35°	16938	16567	16353
40°	16530	16114	15864
45°	16081	15696	15314
50°	15630	15183	14763
55°	15041	14653	14208
60°	14449	14034	13586
65°	13924	13359	12944
70°	13149	12589	12032
75°	12015	11582	11088
80°	10835	10377	10290
85°	9510	9152	8793



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	162.3	2.2
10°-20°	458.3	6.2
20°-30°	677.0	9.2
30°-40°	790.8	10.8
40°-50°	795.1	10.8
50°-60°	698.4	9.5
60°-70°	520.3	7.1
70°-80°	296.4	4.0
80°-90°	87.7	1.2
90°-100°	33.9	0.5
100°-110°	161.8	2.2
110°-120°	388.6	5.3
120°-130°	494.8	6.7
130°-140°	528.7	7.2
140°-150°	494.4	6.7
150°-160°	398.8	5.4
160°-170°	257.4	3.5
170°-180°	88.7	1.2
0°-30°	1297.6	17.7
0°-40°	2088.4	28.5
0°-60°	3581.8	48.8
0°-90°	4486.2	61.2
90°-120°	584.3	8.0
90°-150°	2102.1	28.7
90°-180°	2847.0	38.8
0°-180°	7333.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1723	1723	1723	1723	1723	
5°	1725	1717	1701	1715	1713	163
15°	1642	1635	1616	1627	1619	463
25°	1490	1481	1462	1464	1459	686
35°	1289	1280	1261	1252	1244	806
45°	1056	1050	1031	1014	1006	815
55°	802	799	781	765	757	718
65°	547	539	524	513	508	539
75°	289	283	278	271	267	309
85°	77	74	74	71	71	85
90°	1	8	17	19	21	6
95°	42	16	22	26	26	52
105°	207	210	152	36	30	219
115°	388	392	398	405	408	383
125°	547	552	555	556	558	488
135°	680	684	687	689	687	524
145°	785	790	791	793	793	491
155°	865	864	864	867	864	398
165°	912	910	909	914	910	258
175°	934	930	931	935	930	89
180°	934	934	934	934	934	



TEST NUMBER: P332220-830

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1
2.5°	1729.0	1728.0	1726.9	1725.9	1724.8	1722.8	1720.0	1717.0	1714.1	1711.2	1713.8
5°	1724.6	1723.0	1721.3	1719.7	1718.0	1715.3	1711.8	1708.1	1704.5	1700.8	1704.1
7.5°	1707.7	1706.0	1704.4	1702.7	1701.1	1698.4	1694.6	1690.9	1687.2	1683.4	1686.3
10°	1693.5	1691.8	1690.2	1688.5	1686.9	1683.9	1679.6	1675.4	1671.0	1666.8	1669.7
12.5°	1674.5	1673.1	1671.7	1670.4	1669.0	1666.2	1662.3	1658.2	1654.2	1650.2	1652.4
15°	1641.6	1640.3	1639.0	1637.7	1636.3	1633.5	1629.3	1624.9	1620.7	1616.4	1619.0
17.5°	1603.4	1601.7	1600.0	1598.3	1596.5	1593.6	1589.2	1585.0	1580.6	1576.4	1578.3
20°	1574.9	1572.9	1570.9	1569.0	1567.1	1563.9	1559.6	1555.4	1551.0	1546.8	1548.1
22.5°	1542.9	1541.0	1539.0	1537.0	1535.0	1531.9	1527.6	1523.3	1519.1	1514.8	1515.8
25°	1490.4	1488.5	1486.5	1484.5	1482.6	1479.4	1475.2	1470.9	1466.6	1462.4	1462.6
27.5°	1434.5	1432.6	1430.7	1428.7	1426.8	1423.6	1419.0	1414.4	1409.8	1405.1	1405.4
30°	1394.2	1392.5	1390.9	1389.2	1387.6	1384.5	1379.9	1375.3	1370.6	1366.0	1366.0
32.5°	1353.9	1351.7	1349.5	1347.4	1345.2	1342.3	1338.8	1335.2	1331.6	1328.1	1326.3
35°	1289.0	1287.0	1285.1	1283.1	1281.1	1278.0	1273.7	1269.4	1265.1	1260.8	1258.9
37.5°	1222.6	1220.1	1217.6	1215.1	1212.6	1209.2	1204.9	1200.5	1196.2	1191.8	1189.4
40°	1176.4	1174.4	1172.4	1170.4	1168.5	1165.2	1160.6	1155.9	1151.3	1146.8	1144.2
42.5°	1130.1	1127.9	1125.7	1123.4	1121.2	1117.8	1113.1	1108.5	1103.9	1099.4	1096.7
45°	1056.4	1055.1	1053.8	1052.4	1051.1	1048.3	1044.1	1039.7	1035.5	1031.1	1027.3
47.5°	983.2	981.3	979.4	977.4	975.5	972.6	968.6	964.5	960.5	956.5	952.6
50°	933.4	931.8	930.1	928.5	926.8	923.9	919.5	915.3	911.0	906.7	903.1
52.5°	881.3	880.1	879.0	877.9	876.8	873.9	869.4	864.9	860.4	855.7	852.6
55°	801.5	801.3	800.9	800.6	800.2	798.0	793.6	789.4	785.0	780.8	777.2
57.5°	725.7	724.5	723.4	722.4	721.2	719.0	715.5	712.1	708.7	705.2	702.0
60°	671.2	670.8	670.5	670.1	669.9	667.7	663.7	659.8	655.8	651.9	648.9
62.5°	622.5	621.7	620.9	620.0	619.2	616.7	612.7	608.8	604.9	601.0	597.9
65°	546.7	545.1	543.4	541.8	540.1	537.6	534.3	531.0	527.7	524.5	521.9
67.5°	466.4	465.0	463.5	462.0	460.6	458.6	456.1	453.6	451.1	448.7	446.3
70°	417.8	415.8	413.9	411.9	409.9	407.9	406.0	404.0	402.0	400.0	397.8
72.5°	366.8	365.4	363.9	362.5	361.1	359.2	356.9	354.7	352.5	350.2	348.2
75°	288.9	287.6	286.3	284.9	283.6	282.5	281.5	280.5	279.6	278.5	276.9
77.5°	219.9	219.1	218.4	217.7	217.0	216.0	214.8	213.7	212.4	211.3	210.2
80°	174.8	173.8	172.9	171.8	170.9	170.0	169.4	168.7	168.1	167.4	167.1
82.5°	131.0	130.7	130.5	130.4	130.2	130.0	129.9	129.8	129.6	129.5	128.9
85°	77.0	76.3	75.7	75.0	74.4	74.1	74.1	74.1	74.1	74.1	73.4
87.5°	30.9	30.4	30.0	29.5	29.0	28.8	29.0	29.1	29.3	29.4	29.2
90°	0.7	2.3	3.8	5.3	6.9	8.7	10.7	12.6	14.6	16.7	17.2
92.5°	12.9	12.4	12.1	11.6	11.2	11.7	13.2	14.7	16.2	17.7	18.8
95°	42.3	36.0	29.7	23.4	17.1	14.7	16.4	18.1	19.8	21.5	22.6
97.5°	85.0	82.2	79.4	76.5	73.7	66.7	55.6	44.5	33.5	22.3	23.6
100°	117.3	120.3	123.4	126.5	129.5	119.0	95.0	71.0	46.9	22.9	24.1
102.5°	153.8	156.1	158.3	160.5	162.7	150.7	124.4	98.1	71.9	45.6	41.8
105°	206.7	208.4	210.1	211.8	213.5	207.4	193.5	179.6	165.8	151.9	124.6
107.5°	262.4	263.8	265.1	266.6	267.9	269.7	271.8	274.0	276.3	278.4	258.4
110°	299.6	300.9	302.1	303.3	304.5	306.0	307.7	309.4	311.1	312.8	307.7



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	335.2	336.2	337.3	338.5	339.6	341.0	342.7	344.4	346.1	347.8	347.9
115°	387.7	388.6	389.6	390.5	391.4	392.6	394.0	395.3	396.7	398.1	399.6
117.5°	438.7	439.8	440.9	442.1	443.2	444.1	444.8	445.5	446.2	447.0	448.2
120°	470.2	471.6	473.1	474.4	475.8	476.7	477.2	477.7	478.2	478.5	479.8
122.5°	502.5	503.6	504.7	505.9	507.0	507.8	508.4	509.1	509.6	510.2	511.0
125°	546.6	547.8	549.0	550.3	551.5	552.4	553.0	553.6	554.2	554.9	555.2
127.5°	589.3	590.5	591.7	593.0	594.2	595.2	596.0	596.6	597.4	598.1	598.6
130°	615.9	617.2	618.4	619.6	620.9	621.8	622.4	623.0	623.6	624.2	624.8
132.5°	641.4	642.6	643.9	645.1	646.4	647.2	647.7	648.2	648.7	649.2	649.8
135°	680.4	681.4	682.2	683.2	684.1	684.9	685.5	686.1	686.7	687.3	687.8
137.5°	713.7	714.8	716.0	717.2	718.4	719.2	719.4	719.8	720.2	720.5	721.2
140°	735.8	736.8	737.7	738.7	739.6	740.3	740.7	741.2	741.7	742.2	742.7
142.5°	756.4	757.3	758.3	759.2	760.2	760.8	761.3	761.8	762.2	762.7	763.2
145°	785.1	786.2	787.3	788.3	789.5	790.1	790.4	790.8	791.1	791.4	791.6
147.5°	812.2	812.8	813.6	814.3	815.0	815.5	815.9	816.1	816.4	816.7	817.1
150°	828.9	829.2	829.7	830.2	830.7	831.0	831.4	831.7	832.0	832.3	832.6
152.5°	843.8	844.0	844.2	844.4	844.7	844.9	845.1	845.3	845.5	845.6	846.1
155°	864.9	864.6	864.3	863.9	863.7	863.6	863.7	863.9	864.0	864.2	865.0
157.5°	881.3	881.3	881.2	881.2	881.2	881.1	880.9	880.7	880.6	880.4	881.4
160°	891.3	891.1	891.0	890.8	890.6	890.5	890.3	890.1	890.0	889.9	890.8
162.5°	900.7	900.3	899.8	899.5	899.1	898.8	898.6	898.5	898.3	898.1	899.3
165°	912.1	911.6	911.2	910.7	910.2	909.9	909.7	909.6	909.5	909.3	910.5
167.5°	921.0	920.3	919.7	919.1	918.5	918.1	918.1	918.1	918.1	918.1	919.4
170°	926.0	925.3	924.7	924.1	923.5	923.1	923.1	923.1	923.1	923.1	924.4
172.5°	929.3	928.5	927.7	927.1	926.3	926.0	926.1	926.2	926.3	926.5	927.7
175°	933.6	932.7	932.0	931.2	930.5	930.2	930.3	930.5	930.7	930.8	931.9
177.5°	934.6	934.1	933.4	932.8	932.2	932.0	932.1	932.2	932.4	932.5	933.4
180°	933.6	933.6	933.6	933.6	933.6	933.6	933.6	933.6	933.6	933.6	933.6



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1	1723.1
2.5°	1716.5	1719.1	1721.7	1723.0	1722.7	1722.4	1722.1	1721.9
5°	1707.4	1710.7	1714.0	1715.3	1714.7	1714.0	1713.4	1712.7
7.5°	1689.3	1692.2	1695.3	1696.5	1696.1	1695.7	1695.4	1695.0
10°	1672.7	1675.7	1678.7	1679.8	1679.1	1678.5	1677.8	1677.2
12.5°	1654.5	1656.7	1658.9	1659.8	1659.3	1659.0	1658.6	1658.2
15°	1621.6	1624.3	1626.9	1627.3	1625.3	1623.3	1621.4	1619.4
17.5°	1580.1	1582.0	1583.8	1584.3	1583.7	1582.9	1582.2	1581.5
20°	1549.4	1550.8	1552.1	1552.2	1551.2	1550.2	1549.3	1548.2
22.5°	1516.9	1518.0	1519.0	1518.9	1517.7	1516.4	1515.1	1513.9
25°	1463.0	1463.3	1463.7	1463.3	1462.4	1461.3	1460.4	1459.3
27.5°	1405.7	1405.9	1406.2	1405.7	1404.5	1403.2	1401.9	1400.7
30°	1366.0	1366.0	1366.0	1364.9	1362.5	1360.3	1357.9	1355.7
32.5°	1324.4	1322.6	1320.7	1319.2	1318.0	1316.6	1315.4	1314.2
35°	1256.9	1254.9	1252.9	1251.1	1249.4	1247.8	1246.1	1244.5
37.5°	1187.0	1184.7	1182.3	1180.6	1179.5	1178.5	1177.4	1176.4
40°	1141.5	1138.9	1136.2	1134.3	1132.9	1131.6	1130.3	1129.0
42.5°	1094.1	1091.5	1088.8	1086.8	1085.5	1084.2	1082.9	1081.6
45°	1023.3	1019.4	1015.4	1012.6	1011.0	1009.3	1007.7	1006.0
47.5°	948.8	944.9	940.9	938.3	936.9	935.4	934.0	932.6
50°	899.5	895.9	892.2	889.5	887.5	885.5	883.5	881.6
52.5°	849.6	846.5	843.4	840.8	838.9	836.9	834.9	832.9
55°	773.5	770.0	766.3	763.6	762.0	760.3	758.7	757.1
57.5°	698.8	695.6	692.3	689.8	687.9	686.0	684.0	682.1
60°	646.0	643.0	640.1	637.7	636.1	634.4	632.8	631.1
62.5°	595.0	592.0	589.1	587.0	585.9	584.8	583.7	582.6
65°	519.2	516.6	514.0	512.2	511.1	510.2	509.2	508.2
67.5°	444.0	441.7	439.4	437.5	436.2	434.8	433.4	432.1
70°	395.4	393.1	390.8	388.8	387.2	385.5	383.9	382.3
72.5°	346.2	344.1	342.0	340.6	339.8	338.9	338.1	337.2
75°	275.2	273.6	271.9	270.6	269.7	268.6	267.7	266.6
77.5°	209.1	207.9	206.8	206.2	206.2	206.2	206.2	206.2
80°	166.7	166.5	166.1	166.0	166.0	166.0	166.0	166.0
82.5°	128.3	127.7	127.1	126.7	126.4	126.2	125.9	125.6
85°	72.8	72.1	71.4	71.2	71.2	71.2	71.2	71.2
87.5°	29.1	29.0	28.8	28.8	28.8	28.9	29.0	29.0
90°	17.9	18.5	19.1	19.6	19.9	20.2	20.5	20.8
92.5°	19.7	20.7	21.7	22.2	22.4	22.6	22.8	23.0
95°	23.7	24.7	25.8	26.4	26.4	26.4	26.4	26.4
97.5°	24.8	26.0	27.2	28.0	28.1	28.3	28.5	28.6
100°	25.4	26.6	27.8	28.6	28.7	28.8	28.9	29.1
102.5°	38.0	34.2	30.3	28.6	28.8	29.1	29.4	29.7
105°	97.4	70.0	42.8	29.3	29.6	29.9	30.3	30.5
107.5°	238.4	218.4	198.4	178.1	157.5	137.0	116.4	95.9
110°	302.7	297.6	292.5	278.9	256.8	234.8	212.7	190.8





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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	348.0	348.1	348.2	345.8	341.2	336.6	331.9	327.3
115°	401.2	402.7	404.3	405.4	406.0	406.6	407.2	407.8
117.5°	449.4	450.6	451.9	452.5	452.7	452.8	452.9	453.1
120°	481.1	482.3	483.5	484.1	484.1	484.1	484.1	484.1
122.5°	511.9	512.7	513.7	514.2	514.3	514.3	514.5	514.6
125°	555.4	555.8	556.1	556.4	556.8	557.0	557.3	557.6
127.5°	599.2	599.6	600.1	600.2	599.9	599.6	599.3	599.0
130°	625.5	626.0	626.7	626.9	626.5	626.2	625.9	625.6
132.5°	650.4	651.0	651.7	651.8	651.3	650.9	650.4	650.0
135°	688.2	688.7	689.2	689.2	688.7	688.2	687.8	687.3
137.5°	722.0	722.7	723.5	723.7	723.4	723.0	722.7	722.5
140°	743.4	743.9	744.6	744.8	744.4	744.1	743.9	743.5
142.5°	763.6	764.1	764.6	764.7	764.2	763.8	763.4	762.9
145°	792.0	792.3	792.6	792.8	792.8	792.8	792.8	792.8
147.5°	817.4	817.7	818.0	817.7	817.1	816.3	815.7	814.9
150°	832.9	833.2	833.5	833.5	833.0	832.5	832.1	831.6
152.5°	846.7	847.3	847.8	847.7	847.1	846.3	845.6	844.9
155°	865.7	866.5	867.3	867.2	866.3	865.3	864.4	863.5
157.5°	882.3	883.2	884.1	884.0	882.8	881.6	880.4	879.2
160°	891.7	892.7	893.5	893.5	892.4	891.4	890.2	889.2
162.5°	900.3	901.4	902.4	902.4	901.4	900.5	899.6	898.6
165°	911.7	912.9	914.2	914.3	913.2	912.1	911.1	909.9
167.5°	920.6	921.9	923.1	923.1	921.9	920.6	919.4	918.1
170°	925.6	926.9	928.1	928.1	926.9	925.6	924.4	923.1
172.5°	929.0	930.2	931.4	931.3	930.0	928.7	927.3	926.0
175°	932.9	934.1	935.1	935.0	933.8	932.6	931.3	930.1
177.5°	934.4	935.4	936.4	936.2	935.0	933.8	932.6	931.3
180°	933.6	933.6	933.6	933.6	933.6	933.6	933.6	933.6

(END OF REPORT)