

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: METALUX

Report Number: P192466

Luminaire Tested: **4WSL-LD2-60-UPL8-UNV-L835-CD1-U**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P192466  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28106)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 4WSL-LD2-60-UPL8-UNV-L835-CD1-U  
Description: 4FT Linear Wavestream System, 8% Uplight, L835  
Light Source: (238) 3500K CCT, 80 CRI LEDs  
EL236N0119D835  
Ballast/Driver: OSRAM  
OT50W

**Summary**

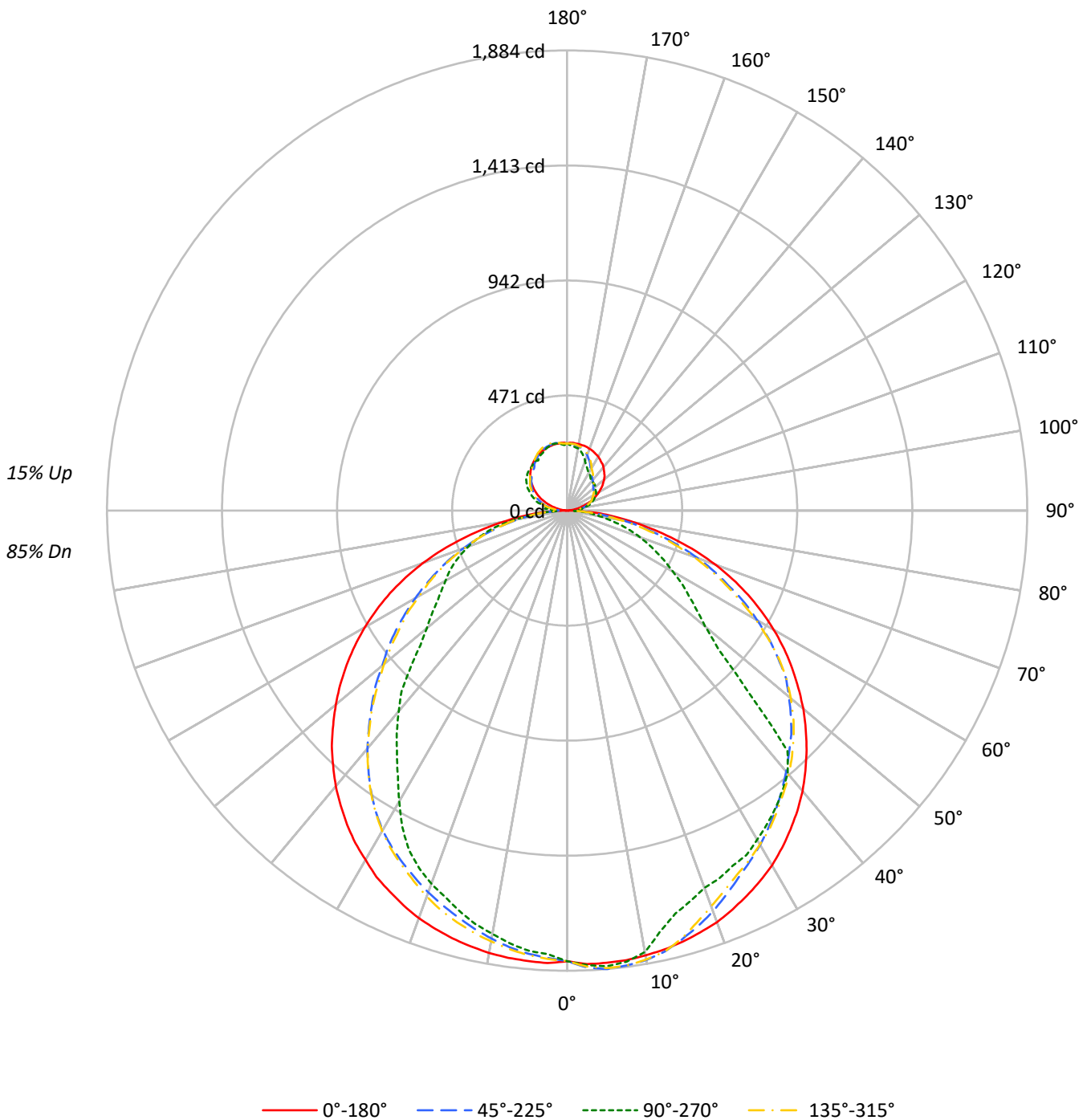
Lumens per Lamp: N/A  
Luminaire Lumens: 6119.0 lumens  
Efficiency: N/A  
Efficacy: 108.9 lumens/watt  
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36  
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')  
CIE Type: Semi-Direct

Input Watts (W): 56.2  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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

TEST NUMBER: P192466

CATALOG NUMBER: 4WSL-LD2-60-UPL8-UNV-L835-CD1-U

### 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	115	115	115	115	111	111	111	111	103	103	103	95	95	95	88	88	88	85
1	105	101	96	92	101	97	93	90	90	87	84	83	81	79	78	76	74	71
2	96	88	81	75	92	84	78	73	78	73	69	73	69	65	68	65	62	59
3	87	77	69	62	83	74	67	61	69	63	58	64	59	55	60	56	52	50
4	80	68	59	53	76	66	58	52	61	55	49	57	52	47	53	49	45	42
5	73	61	52	45	70	59	51	44	55	48	43	51	45	41	48	43	39	37
6	68	55	46	40	65	53	45	39	50	43	37	47	40	36	44	38	34	32
7	63	49	41	35	60	48	40	34	45	38	33	42	36	32	40	35	31	28
8	58	45	37	31	56	44	36	30	41	34	29	39	33	28	37	31	27	25
9	54	41	33	28	52	40	33	27	38	31	26	36	30	26	34	29	25	23
10	51	38	30	25	49	37	30	25	35	28	24	33	27	23	31	26	22	21

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

	0°	90°	180°	270°
0°	10451	10451	10451	10451
5°	10570	10648	10525	10289
10°	10635	10555	10578	10124
15°	10715	10020	10635	9962
20°	10812	9907	10705	9800
25°	10877	10025	10754	9581
30°	10970	10181	10802	8993
35°	11024	10286	10859	8401
40°	11086	10385	10897	7932
45°	11109	8356	10919	7248
50°	11124	6493	10897	6615
55°	11101	6008	10885	6418
60°	11078	5662	10832	6513
65°	10961	5428	10723	6831
70°	10666	5234	10404	7132
75°	9988	4929	9684	7523
80°	9086	4512	8698	7151
85°	8860	4882	7963	6422



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	175.4	2.9
10°-20°	498.0	8.1
20°-30°	753.9	12.3
30°-40°	910.3	14.9
40°-50°	929.4	15.2
50°-60°	812.6	13.3
60°-70°	629.8	10.3
70°-80°	378.6	6.2
80°-90°	116.9	1.9
90°-100°	49.3	0.8
100°-110°	94.2	1.5
110°-120°	128.0	2.1
120°-130°	145.5	2.4
130°-140°	147.6	2.4
140°-150°	135.9	2.2
150°-160°	112.1	1.8
160°-170°	75.4	1.2
170°-180°	26.2	0.4
0°-30°	1427.3	23.3
0°-40°	2337.6	38.2
0°-60°	4079.5	66.7
0°-90°	5204.8	85.1
90°-120°	271.5	4.4
90°-150°	700.5	11.4
90°-180°	914.0	14.9
0°-180°	6119.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	1845	1845	1845	1845	1845	
5°	1859	1872	1851	1809	1859	177
15°	1827	1708	1813	1699	1827	517
25°	1740	1604	1720	1533	1740	803
35°	1594	1487	1570	1215	1594	998
45°	1387	1043	1363	905	1387	1069
55°	1124	608	1102	650	1124	1005
65°	818	405	800	510	818	807
75°	456	225	442	344	456	484
85°	136	75	122	99	136	138
90°	2	42	2	47	2	9
95°	12	57	12	91	12	15
105°	63	97	61	122	63	68
115°	122	124	120	166	122	121
125°	176	142	172	203	176	156
135°	215	156	213	225	215	166
145°	243	166	241	239	243	153
155°	263	194	261	253	263	121
165°	274	241	273	274	274	77
175°	278	265	278	273	278	26
180°	274	274	274	274	274	



TEST NUMBER: P192466

CATALOG NUMBER: 4WSL-LD2-60-UPL8-UNV-L835-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8
2.5°	1858.6	1848.7	1872.4	1876.4	1862.6	1866.5	1868.5	1846.8	1854.7	1825.0	1832.9
5°	1858.6	1856.6	1884.3	1880.3	1872.4	1874.4	1880.3	1854.7	1850.7	1815.2	1821.1
7.5°	1856.6	1860.6	1878.4	1874.4	1862.6	1868.5	1878.4	1858.6	1846.8	1805.3	1803.3
10°	1848.7	1854.7	1868.5	1856.6	1834.9	1844.8	1866.5	1854.7	1838.9	1789.5	1779.6
12.5°	1840.8	1844.8	1848.7	1799.4	1763.8	1787.5	1848.7	1844.8	1827.0	1771.7	1753.9
15°	1827.0	1832.9	1817.1	1746.0	1708.5	1732.2	1813.2	1829.0	1813.2	1746.0	1724.3
17.5°	1811.2	1817.1	1783.6	1704.6	1676.9	1688.8	1767.8	1809.2	1795.4	1722.3	1694.7
20°	1793.4	1799.4	1746.0	1661.1	1643.3	1653.2	1724.3	1787.5	1775.7	1694.7	1663.1
22.5°	1767.8	1777.6	1702.6	1631.5	1629.5	1629.5	1682.8	1761.8	1750.0	1661.1	1627.5
25°	1740.1	1750.0	1659.1	1603.8	1603.8	1603.8	1645.3	1728.3	1720.4	1625.6	1592.0
27.5°	1710.5	1720.4	1619.6	1584.1	1590.0	1580.1	1613.7	1690.7	1690.7	1590.0	1554.4
30°	1676.9	1686.8	1580.1	1552.5	1556.4	1552.5	1578.1	1651.2	1651.2	1548.5	1511.0
32.5°	1637.4	1647.3	1536.7	1514.9	1522.8	1518.9	1544.6	1611.7	1613.7	1505.1	1459.6
35°	1594.0	1605.8	1491.2	1479.4	1487.3	1481.4	1499.1	1570.2	1570.2	1457.7	1400.4
37.5°	1548.5	1560.4	1443.8	1439.9	1447.8	1441.9	1455.7	1526.8	1522.8	1408.3	1337.2
40°	1499.1	1513.0	1394.5	1394.5	1404.3	1400.4	1412.2	1481.4	1473.5	1358.9	1272.0
42.5°	1443.8	1461.6	1345.1	1347.1	1335.2	1351.0	1362.9	1434.0	1418.2	1303.6	1200.9
45°	1386.6	1408.3	1297.7	1262.1	1042.9	1248.3	1311.5	1386.6	1362.9	1248.3	1131.8
47.5°	1325.3	1353.0	1242.4	1112.0	839.4	1094.2	1256.2	1327.3	1299.7	1189.0	1064.6
50°	1262.1	1293.7	1185.1	983.6	736.7	963.9	1195.0	1268.0	1236.4	1127.8	987.6
52.5°	1193.0	1228.5	1129.8	871.0	667.6	853.3	1131.8	1210.8	1171.3	1062.6	924.4
55°	1123.9	1161.4	1054.7	774.3	608.3	758.5	1058.7	1137.7	1102.1	995.5	855.2
57.5°	1052.8	1090.3	979.7	689.3	557.0	673.5	975.7	1070.5	1031.0	926.3	786.1
60°	977.7	1015.2	898.7	612.3	499.7	600.4	890.8	995.5	956.0	855.2	719.0
62.5°	898.7	936.2	821.7	541.2	452.3	531.3	798.0	922.4	878.9	780.2	649.8
65°	817.7	845.4	730.8	474.0	404.9	466.1	715.0	831.5	799.9	701.2	584.6
67.5°	732.8	760.4	651.8	414.8	359.5	406.9	634.0	750.6	715.0	624.1	519.5
70°	643.9	667.6	568.8	357.5	316.0	351.6	549.1	659.7	628.1	543.2	450.3
72.5°	553.0	574.8	480.0	304.2	270.6	300.2	460.2	568.8	537.2	458.2	387.1
75°	456.3	478.0	397.0	250.8	225.2	246.9	379.2	472.1	442.4	377.3	322.0
77.5°	365.4	391.1	314.0	197.5	179.7	193.6	298.2	381.2	351.6	302.2	258.7
80°	278.5	300.2	233.1	150.1	138.3	148.1	217.3	290.3	266.6	233.1	201.5
82.5°	201.5	213.3	160.0	110.6	104.7	108.6	148.1	205.4	193.6	167.9	148.1
85°	136.3	134.3	98.8	77.0	75.1	77.0	88.9	124.4	122.5	112.6	94.8
87.5°	57.3	53.3	45.4	31.6	27.7	29.6	35.6	47.4	45.4	47.4	45.4
90°	2.0	19.8	31.6	39.5	41.5	39.5	31.6	19.8	2.0	21.7	35.6
92.5°	4.0	25.7	37.5	43.5	47.4	43.5	35.6	25.7	4.0	33.6	35.6
95°	11.9	35.6	43.5	53.3	57.3	53.3	43.5	33.6	11.9	29.6	53.3
97.5°	23.7	45.4	51.4	59.3	61.2	57.3	49.4	45.4	21.7	53.3	55.3
100°	35.6	57.3	67.2	67.2	69.1	67.2	65.2	55.3	33.6	59.3	67.2
102.5°	49.4	65.2	77.0	83.0	83.0	83.0	77.0	65.2	45.4	73.1	92.8
105°	63.2	71.1	84.9	92.8	96.8	92.8	84.9	73.1	61.2	84.9	98.8
107.5°	79.0	77.0	92.8	100.7	104.7	100.7	92.8	79.0	75.1	94.8	110.6
110°	94.8	84.9	100.7	108.6	110.6	108.6	100.7	84.9	90.9	106.7	122.5



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CATALOG NUMBER: 4WSL-LD2-60-UPL8-UNV-L835-CD1-U

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	108.6	90.9	108.6	116.5	118.5	116.5	108.6	92.8	104.7	114.6	134.3
115°	122.5	96.8	112.6	122.5	124.4	122.5	112.6	98.8	120.5	124.4	144.2
117.5°	136.3	104.7	116.5	128.4	130.4	128.4	118.5	106.7	134.3	136.3	154.1
120°	150.1	114.6	122.5	132.3	136.3	134.3	122.5	116.5	146.2	146.2	162.0
122.5°	162.0	122.5	128.4	136.3	140.2	136.3	128.4	126.4	160.0	156.0	171.8
125°	175.8	130.4	132.3	140.2	142.2	140.2	134.3	132.3	171.8	163.9	177.8
127.5°	185.7	140.2	136.3	144.2	146.2	144.2	138.3	142.2	183.7	179.7	183.7
130°	197.5	150.1	140.2	148.1	150.1	150.1	140.2	154.1	193.6	191.6	191.6
132.5°	207.4	160.0	144.2	152.1	154.1	154.1	146.2	162.0	203.4	201.5	197.5
135°	215.3	173.8	152.1	152.1	156.0	156.0	154.1	175.8	213.3	211.3	207.4
137.5°	223.2	185.7	158.0	154.1	156.0	156.0	162.0	187.6	221.2	221.2	213.3
140°	231.1	197.5	162.0	158.0	158.0	162.0	167.9	199.5	229.1	229.1	215.3
142.5°	239.0	207.4	167.9	163.9	160.0	167.9	173.8	211.3	235.0	237.0	221.2
145°	242.9	217.3	175.8	169.9	165.9	175.8	183.7	221.2	241.0	244.9	233.1
147.5°	248.9	227.1	185.7	173.8	173.8	179.7	191.6	229.1	246.9	250.8	239.0
150°	254.8	235.0	193.6	179.7	175.8	185.7	199.5	237.0	252.8	256.8	246.9
152.5°	258.7	242.9	205.4	187.6	183.7	195.5	213.3	242.9	256.8	260.7	254.8
155°	262.7	248.9	219.2	195.5	193.6	203.4	225.2	248.9	260.7	264.7	260.7
157.5°	266.6	254.8	229.1	207.4	199.5	215.3	235.0	256.8	264.7	268.6	266.6
160°	268.6	258.7	241.0	219.2	215.3	229.1	244.9	258.7	266.6	272.6	270.6
162.5°	272.6	262.7	248.9	233.1	229.1	241.0	252.8	264.7	270.6	274.5	274.5
165°	274.5	266.6	256.8	244.9	241.0	252.8	258.7	268.6	272.6	274.5	276.5
167.5°	274.5	270.6	262.7	252.8	250.8	260.7	266.6	272.6	274.5	274.5	278.5
170°	276.5	272.6	266.6	260.7	258.7	266.6	268.6	274.5	276.5	274.5	280.5
172.5°	276.5	274.5	270.6	264.7	260.7	270.6	272.6	274.5	276.5	274.5	278.5
175°	278.5	274.5	274.5	270.6	264.7	274.5	274.5	274.5	278.5	274.5	276.5
177.5°	278.5	274.5	274.5	272.6	268.6	274.5	274.5	274.5	278.5	274.5	276.5
180°	274.5	274.5	274.5	274.5	274.5	274.5	274.5	274.5	274.5	274.5	274.5



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1844.8	1844.8	1844.8	1844.8	1844.8	1844.8
2.5°	1831.0	1817.1	1821.1	1836.9	1831.0	1858.6
5°	1817.1	1809.2	1809.2	1827.0	1825.0	1858.6
7.5°	1795.4	1787.5	1791.5	1811.2	1815.2	1856.6
10°	1769.7	1759.9	1763.8	1791.5	1801.3	1848.7
12.5°	1742.1	1734.2	1738.1	1769.7	1783.6	1840.8
15°	1710.5	1698.6	1710.5	1744.1	1761.8	1827.0
17.5°	1674.9	1659.1	1673.0	1716.4	1738.1	1811.2
20°	1639.4	1625.6	1633.5	1680.9	1712.5	1793.4
22.5°	1603.8	1584.1	1592.0	1641.4	1680.9	1767.8
25°	1562.3	1532.7	1548.5	1601.9	1647.3	1740.1
27.5°	1507.0	1461.6	1495.2	1562.3	1607.8	1710.5
30°	1434.0	1374.7	1424.1	1514.9	1566.3	1676.9
32.5°	1353.0	1289.8	1345.1	1461.6	1522.8	1637.4
35°	1272.0	1214.7	1264.1	1402.4	1477.4	1594.0
37.5°	1195.0	1145.6	1191.0	1339.2	1430.0	1548.5
40°	1121.9	1072.5	1119.9	1270.0	1378.7	1499.1
42.5°	1048.8	1003.4	1048.8	1196.9	1325.3	1443.8
45°	975.7	904.6	971.8	1125.8	1268.0	1386.6
47.5°	896.7	813.8	890.8	1048.8	1206.8	1325.3
50°	821.7	750.6	817.7	977.7	1143.6	1262.1
52.5°	756.5	699.2	752.5	904.6	1078.4	1193.0
55°	695.3	649.8	695.3	833.5	1009.3	1123.9
57.5°	640.0	610.3	641.9	772.3	938.2	1052.8
60°	592.5	574.8	594.5	697.2	867.1	977.7
62.5°	547.1	545.1	549.1	638.0	792.0	898.7
65°	499.7	509.6	499.7	574.8	717.0	817.7
67.5°	452.3	472.1	456.3	511.6	636.0	732.8
70°	408.9	430.6	408.9	446.4	555.0	643.9
72.5°	359.5	387.1	359.5	385.2	470.1	553.0
75°	312.1	343.7	314.0	322.0	389.1	456.3
77.5°	260.7	290.3	266.6	260.7	314.0	365.4
80°	207.4	219.2	207.4	205.4	242.9	278.5
82.5°	144.2	154.1	144.2	150.1	177.8	201.5
85°	94.8	98.8	94.8	96.8	118.5	136.3
87.5°	39.5	39.5	39.5	49.4	53.3	57.3
90°	43.5	47.4	43.5	35.6	21.7	2.0
92.5°	45.4	49.4	45.4	39.5	25.7	4.0
95°	81.0	90.9	77.0	49.4	41.5	11.9
97.5°	65.2	71.1	67.2	57.3	51.4	23.7
100°	77.0	83.0	77.0	81.0	63.2	35.6
102.5°	90.9	94.8	92.8	94.8	77.0	49.4
105°	118.5	122.5	118.5	102.7	88.9	63.2
107.5°	126.4	136.3	128.4	114.6	100.7	79.0
110°	136.3	144.2	138.3	126.4	110.6	94.8





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	146.2	156.0	150.1	140.2	118.5	108.6
115°	158.0	165.9	162.0	150.1	130.4	122.5
117.5°	169.9	175.8	171.8	158.0	142.2	136.3
120°	179.7	187.6	183.7	167.9	152.1	150.1
122.5°	187.6	195.5	191.6	177.8	162.0	162.0
125°	195.5	203.4	199.5	185.7	169.9	175.8
127.5°	201.5	211.3	207.4	191.6	187.6	185.7
130°	209.4	215.3	213.3	197.5	197.5	197.5
132.5°	213.3	221.2	217.3	205.4	209.4	207.4
135°	215.3	225.2	221.2	215.3	219.2	215.3
137.5°	219.2	227.1	225.2	221.2	229.1	223.2
140°	225.2	229.1	231.1	225.2	237.0	231.1
142.5°	231.1	233.1	237.0	231.1	244.9	239.0
145°	235.0	239.0	242.9	242.9	250.8	242.9
147.5°	235.0	241.0	241.0	246.9	258.7	248.9
150°	241.0	237.0	248.9	254.8	262.7	254.8
152.5°	248.9	246.9	256.8	262.7	266.6	258.7
155°	250.8	252.8	258.7	268.6	270.6	262.7
157.5°	258.7	256.8	266.6	274.5	274.5	266.6
160°	264.7	264.7	274.5	278.5	276.5	268.6
162.5°	270.6	270.6	280.5	280.5	278.5	272.6
165°	274.5	274.5	284.4	282.4	278.5	274.5
167.5°	276.5	278.5	286.4	284.4	278.5	274.5
170°	278.5	278.5	286.4	282.4	278.5	276.5
172.5°	278.5	276.5	284.4	280.5	276.5	276.5
175°	276.5	272.6	280.5	276.5	276.5	278.5
177.5°	274.5	268.6	274.5	274.5	276.5	278.5
180°	274.5	274.5	274.5	274.5	274.5	274.5

(END OF REPORT)