

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: P192500

Luminaire Tested: **4WSL-LD2-45-UPL15-UNV-L850-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192500
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P28105)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WSL-LD2-45-UPL15-UNV-L850-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L850
Light Source: (238) 5000K CCT, 80 CRI LEDS
EL236N0119D850
Ballast/Driver: OSRAM
OT50W

Summary

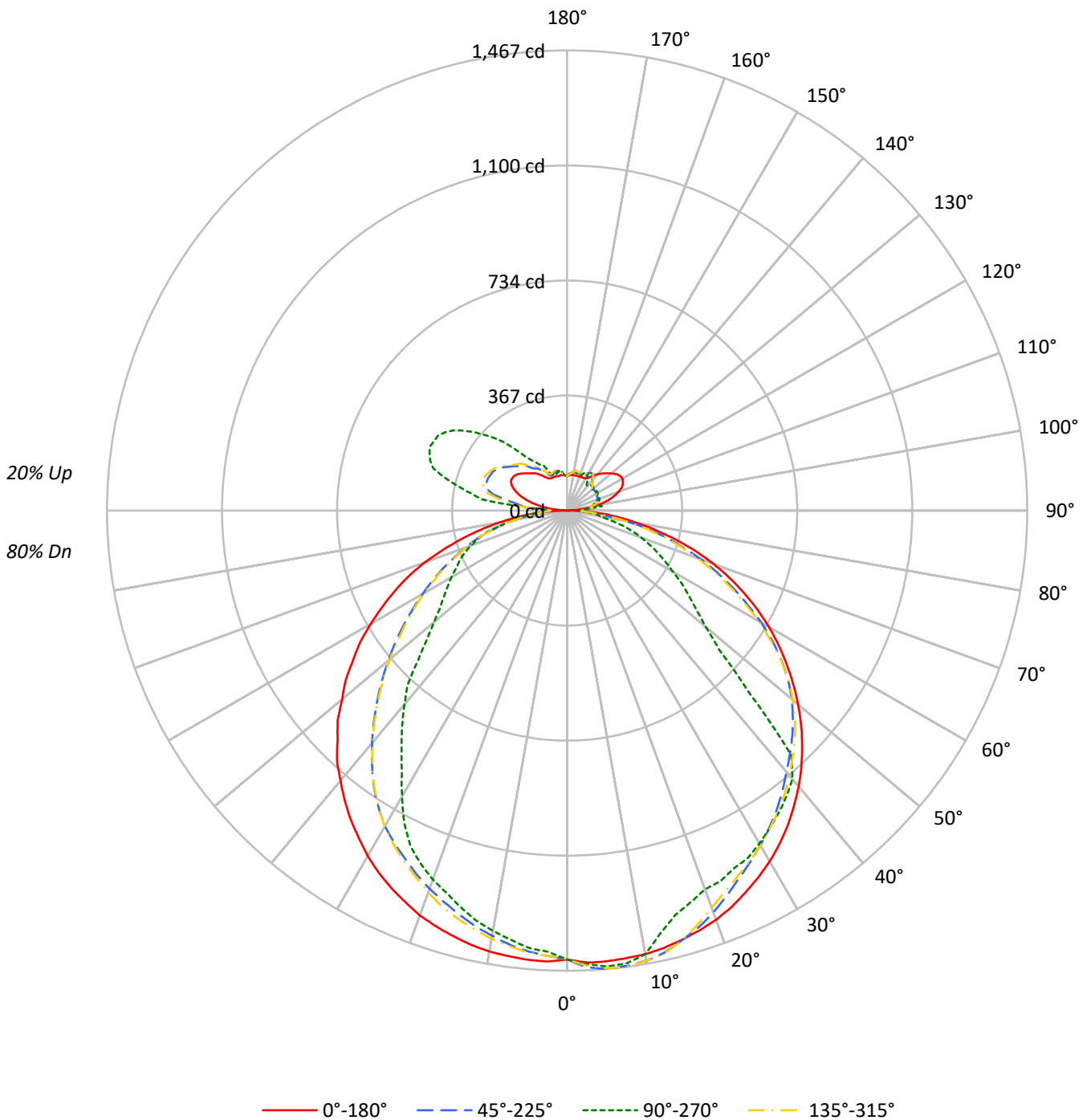
Lumens per Lamp: N/A
Luminaire Lumens: 5064.0 lumens
Efficiency: N/A
Efficacy: 126.9 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 39.9
Input Voltage (V): NR
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	114	114	114	114	109	109	109	109	100	100	100	91	91	91	83	83	83	80
1	104	99	95	91	99	95	91	88	87	84	81	80	77	75	73	71	70	66
2	94	86	80	74	90	83	77	72	76	71	67	70	66	62	64	61	58	55
3	86	76	68	62	82	73	66	60	67	61	56	61	57	53	56	53	49	46
4	79	67	59	52	75	64	57	51	59	53	48	55	49	45	50	46	42	40
5	72	60	51	45	69	58	50	44	53	46	41	49	43	39	45	41	37	34
6	67	54	45	39	64	52	44	38	48	41	36	44	39	34	41	36	32	30
7	62	49	40	34	59	47	39	33	44	37	32	40	35	30	38	33	29	26
8	58	44	36	30	55	43	35	30	40	33	28	37	31	27	34	29	26	24
9	54	41	33	27	51	39	32	27	37	30	26	34	28	24	32	27	23	21
10	50	37	30	25	48	36	29	24	34	27	23	32	26	22	30	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	8106	8106	8106	8106
5°	8203	8296	8175	7960
10°	8260	8260	8212	7825
15°	8306	7824	8238	7679
20°	8369	7745	8280	7547
25°	8400	7866	8297	7384
30°	8447	8017	8318	6888
35°	8476	8135	8316	6363
40°	8492	8261	8310	5965
45°	8489	6568	8292	5370
50°	8470	5068	8253	4879
55°	8438	4673	8227	4738
60°	8414	4411	8190	4839
65°	8346	4272	8126	5064
70°	8217	4164	8000	5415
75°	7838	3955	7587	5755
80°	7344	3592	7128	5735
85°	7371	4700	6832	6832



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	136.2	2.7
10°-20°	386.4	7.6
20°-30°	584.0	11.5
30°-40°	702.8	13.9
40°-50°	714.8	14.1
50°-60°	622.1	12.3
60°-70°	485.3	9.6
70°-80°	300.0	5.9
80°-90°	105.6	2.1
90°-100°	99.4	2.0
100°-110°	192.4	3.8
110°-120°	210.5	4.2
120°-130°	184.6	3.6
130°-140°	138.3	2.7
140°-150°	94.7	1.9
150°-160°	60.3	1.2
160°-170°	35.2	0.7
170°-180°	11.4	0.2
0°-30°	1106.6	21.9
0°-40°	1809.4	35.7
0°-60°	3146.3	62.1
0°-90°	4037.2	79.7
90°-120°	502.3	9.9
90°-150°	919.9	18.2
90°-180°	1027.0	20.3
0°-180°	5064.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1431	1431	1431	1431	1431	
5°	1442	1459	1438	1400	1442	137
15°	1416	1334	1405	1309	1416	400
25°	1344	1258	1327	1181	1344	620
35°	1226	1176	1202	920	1226	767
45°	1060	820	1035	670	1060	817
55°	854	473	833	480	854	764
65°	623	319	606	378	623	615
75°	358	181	347	263	358	379
85°	113	72	105	105	113	113
90°	2	46	2	72	2	9
95°	44	76	34	151	44	46
105°	141	94	136	402	141	147
115°	196	107	196	483	196	191
125°	199	112	199	445	199	177
135°	168	112	168	325	168	130
145°	131	112	135	194	131	84
155°	117	135	115	133	117	54
165°	115	122	113	123	115	33
175°	113	118	113	115	113	11
180°	110	110	110	110	110	



TEST NUMBER: P192500

CATALOG NUMBER: 4WSL-LD2-45-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9
2.5°	1442.4	1435.8	1457.2	1458.8	1447.3	1452.2	1452.2	1434.2	1439.1	1417.8	1421.0
5°	1442.4	1444.0	1467.0	1465.4	1458.8	1460.5	1465.4	1442.4	1437.5	1407.9	1411.2
7.5°	1439.1	1447.3	1463.7	1462.1	1455.5	1457.2	1465.4	1445.7	1432.5	1398.0	1396.4
10°	1435.8	1444.0	1457.2	1449.0	1435.8	1440.7	1457.2	1444.0	1427.6	1386.5	1376.7
12.5°	1427.6	1435.8	1442.4	1401.3	1378.3	1398.0	1444.0	1435.8	1417.8	1370.1	1357.0
15°	1416.1	1426.0	1417.8	1360.3	1334.0	1352.0	1417.8	1424.3	1404.6	1348.8	1332.3
17.5°	1403.0	1414.5	1393.1	1329.0	1309.3	1317.5	1383.3	1409.5	1389.8	1327.4	1307.7
20°	1388.2	1401.3	1363.5	1296.2	1284.7	1291.3	1347.1	1393.1	1373.4	1304.4	1283.0
22.5°	1368.5	1383.3	1329.0	1273.2	1278.1	1273.2	1314.3	1371.8	1350.4	1279.8	1255.1
25°	1343.8	1360.3	1294.5	1253.5	1258.4	1256.8	1286.3	1343.8	1327.4	1250.2	1223.9
27.5°	1319.2	1335.6	1263.3	1240.3	1248.5	1238.7	1260.0	1314.3	1301.1	1219.0	1194.3
30°	1291.3	1309.3	1232.1	1217.3	1225.5	1219.0	1233.8	1284.7	1271.5	1186.1	1161.5
32.5°	1260.0	1278.1	1199.3	1189.4	1200.9	1192.7	1202.5	1251.8	1237.0	1150.0	1120.4
35°	1225.5	1243.6	1164.8	1164.8	1176.3	1166.4	1171.3	1219.0	1202.5	1113.8	1074.4
37.5°	1187.8	1207.5	1127.0	1135.2	1148.3	1138.5	1138.5	1184.5	1164.8	1074.4	1021.8
40°	1148.3	1169.7	1087.5	1105.6	1117.1	1105.6	1102.3	1148.3	1123.7	1035.0	967.6
42.5°	1105.6	1128.6	1051.4	1072.8	1058.0	1072.8	1064.5	1110.5	1085.9	992.3	911.8
45°	1059.6	1089.2	1015.3	1002.1	819.8	992.3	1026.8	1071.1	1035.0	951.2	855.9
47.5°	1012.0	1043.2	975.8	880.5	658.8	870.7	985.7	1028.4	992.3	906.8	800.1
50°	961.0	997.2	934.8	775.4	575.0	765.6	939.7	984.0	936.4	859.2	744.2
52.5°	908.5	947.9	888.8	685.1	519.1	675.2	890.4	936.4	890.4	808.3	690.0
55°	854.3	895.3	834.6	601.3	473.1	599.6	832.9	885.5	832.9	757.3	635.8
57.5°	800.1	846.1	777.1	540.5	433.7	532.3	768.8	832.9	783.6	704.8	583.2
60°	742.6	785.3	714.6	474.8	389.3	473.1	704.8	778.7	722.8	650.6	532.3
62.5°	683.4	731.1	647.3	417.3	353.2	415.6	635.8	717.9	663.7	594.7	483.0
65°	622.6	668.6	583.2	371.3	318.7	368.0	571.7	655.5	606.2	538.8	437.0
67.5°	560.2	602.9	519.1	326.9	284.2	323.6	506.0	589.8	547.1	481.3	387.7
70°	496.1	535.6	453.4	284.2	251.4	282.6	441.9	522.4	483.0	422.2	343.3
72.5°	428.8	464.9	384.4	243.1	216.9	241.5	374.6	453.4	412.3	359.8	303.9
75°	358.1	392.6	320.3	202.1	180.7	200.4	310.5	379.5	346.6	302.3	257.9
77.5°	290.8	325.3	254.6	156.1	138.0	152.8	243.1	310.5	282.6	244.8	210.3
80°	225.1	253.0	187.3	116.6	110.1	116.6	182.4	238.2	218.5	192.2	164.3
82.5°	165.9	182.4	126.5	95.3	95.3	95.3	123.2	169.2	161.0	142.9	124.9
85°	113.4	113.4	85.4	72.3	72.3	72.3	83.8	100.2	105.1	95.3	95.3
87.5°	47.6	49.3	44.4	39.4	37.8	39.4	42.7	41.1	41.1	46.0	57.5
90°	1.6	21.4	36.1	44.4	46.0	42.7	32.9	19.7	1.6	27.9	50.9
92.5°	11.5	46.0	42.7	55.9	57.5	52.6	44.4	36.1	6.6	50.9	54.2
95°	44.4	54.2	83.8	85.4	75.6	72.3	82.1	50.9	34.5	69.0	138.0
97.5°	70.6	82.1	75.6	98.6	111.7	98.6	78.9	78.9	65.7	106.8	161.0
100°	96.9	87.1	77.2	85.4	98.6	87.1	73.9	87.1	92.0	124.9	197.1
102.5°	121.6	96.9	96.9	83.8	85.4	82.1	93.6	95.3	115.0	141.3	243.1
105°	141.3	100.2	101.9	95.3	93.6	95.3	101.9	101.9	136.4	156.1	264.5
107.5°	159.4	103.5	100.2	105.1	106.8	105.1	100.2	103.5	156.1	165.9	269.4
110°	174.1	105.1	101.9	105.1	110.1	105.1	101.9	106.8	172.5	175.8	272.7



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CATALOG NUMBER: 4WSL-LD2-45-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	187.3	106.8	105.1	103.5	108.4	103.5	105.1	110.1	185.6	180.7	272.7
115°	195.5	108.4	105.1	105.1	106.8	105.1	106.8	111.7	195.5	182.4	269.4
117.5°	200.4	111.7	106.8	108.4	110.1	108.4	106.8	115.0	202.1	188.9	267.8
120°	203.7	123.2	106.8	110.1	111.7	110.1	106.8	124.9	203.7	192.2	261.2
122.5°	202.1	128.1	108.4	110.1	113.4	110.1	108.4	129.8	202.1	190.6	253.0
125°	198.8	133.1	108.4	108.4	111.7	110.1	110.1	133.1	198.8	187.3	241.5
127.5°	192.2	144.6	108.4	110.1	110.1	110.1	110.1	142.9	192.2	188.9	230.0
130°	184.0	152.8	105.1	111.7	110.1	113.4	108.4	152.8	184.0	184.0	220.1
132.5°	175.8	156.1	105.1	111.7	111.7	113.4	106.8	156.1	175.8	177.4	210.3
135°	167.6	159.4	111.7	110.1	111.7	111.7	113.4	159.4	167.6	170.9	203.7
137.5°	159.4	161.0	119.9	105.1	110.1	106.8	123.2	161.0	161.0	161.0	193.9
140°	151.1	159.4	126.5	101.9	103.5	105.1	129.8	161.0	154.4	156.1	177.4
142.5°	141.3	154.4	131.4	110.1	101.9	113.4	134.7	159.4	144.6	151.1	169.2
145°	131.4	149.5	141.3	121.6	111.7	126.5	146.2	154.4	134.7	147.9	164.3
147.5°	123.2	141.3	142.9	128.1	123.2	133.1	147.9	147.9	124.9	141.3	152.8
150°	118.3	133.1	138.0	133.1	128.1	139.6	144.6	136.4	118.3	136.4	142.9
152.5°	116.6	126.5	126.5	139.6	138.0	146.2	133.1	129.8	115.0	131.4	129.8
155°	116.6	124.9	121.6	128.1	134.7	134.7	126.5	126.5	115.0	131.4	123.2
157.5°	115.0	126.5	121.6	119.9	123.2	126.5	126.5	128.1	115.0	128.1	123.2
160°	115.0	128.1	123.2	118.3	119.9	124.9	128.1	128.1	115.0	128.1	124.9
162.5°	115.0	124.9	124.9	119.9	119.9	126.5	128.1	126.5	115.0	124.9	128.1
165°	115.0	124.9	126.5	123.2	121.6	129.8	128.1	123.2	113.4	123.2	129.8
167.5°	115.0	121.6	128.1	124.9	124.9	129.8	129.8	121.6	113.4	118.3	129.8
170°	115.0	119.9	126.5	124.9	126.5	131.4	126.5	119.9	115.0	116.6	124.9
172.5°	115.0	116.6	123.2	124.9	124.9	128.1	123.2	116.6	115.0	113.4	119.9
175°	113.4	116.6	119.9	119.9	118.3	123.2	118.3	115.0	113.4	111.7	115.0
177.5°	111.7	113.4	116.6	116.6	113.4	116.6	113.4	111.7	111.7	110.1	113.4
180°	110.1	110.1	110.1	110.1	110.1	110.1	110.1	110.1	110.1	110.1	110.1



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CATALOG NUMBER: 4WSL-LD2-45-UPL15-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1430.9	1430.9	1430.9	1430.9	1430.9	1430.9
2.5°	1419.4	1407.9	1411.2	1421.0	1419.4	1442.4
5°	1404.6	1399.7	1399.7	1414.5	1412.8	1442.4
7.5°	1388.2	1380.0	1384.9	1401.3	1406.3	1439.1
10°	1366.8	1360.3	1361.9	1386.5	1394.8	1435.8
12.5°	1345.5	1338.9	1343.8	1366.8	1378.3	1427.6
15°	1320.8	1309.3	1322.5	1347.1	1361.9	1416.1
17.5°	1291.3	1278.1	1291.3	1324.1	1342.2	1403.0
20°	1265.0	1251.8	1260.0	1294.5	1319.2	1388.2
22.5°	1235.4	1219.0	1225.5	1263.3	1294.5	1368.5
25°	1202.5	1181.2	1191.0	1232.1	1266.6	1343.8
27.5°	1159.8	1123.7	1148.3	1199.3	1232.1	1319.2
30°	1100.7	1053.0	1092.5	1163.1	1200.9	1291.3
32.5°	1031.7	980.8	1023.5	1118.8	1164.8	1260.0
35°	964.3	920.0	959.4	1072.8	1128.6	1225.5
37.5°	905.2	864.1	900.3	1020.2	1089.2	1187.8
40°	844.4	806.6	842.8	964.3	1049.8	1148.3
42.5°	788.6	752.4	786.9	908.5	1007.0	1105.6
45°	729.4	670.3	726.1	851.0	961.0	1059.6
47.5°	667.0	604.6	662.1	795.1	915.0	1012.0
50°	609.5	553.6	606.2	737.6	865.8	961.0
52.5°	558.6	510.9	556.9	680.1	814.8	908.5
55°	510.9	479.7	512.6	627.6	767.2	854.3
57.5°	473.1	451.8	474.8	576.6	714.6	800.1
60°	440.3	427.1	441.9	525.7	658.8	742.6
62.5°	404.1	399.2	404.1	476.4	604.6	683.4
65°	372.9	377.8	372.9	432.1	547.1	622.6
67.5°	343.3	354.8	345.0	384.4	489.6	560.2
70°	310.5	326.9	312.1	341.7	430.4	496.1
72.5°	276.0	295.7	276.0	300.6	368.0	428.8
75°	239.9	262.9	241.5	256.3	308.8	358.1
77.5°	200.4	215.2	203.7	208.6	251.4	290.8
80°	159.4	175.8	161.0	164.3	198.8	225.1
82.5°	133.1	144.6	134.7	124.9	147.9	165.9
85°	98.6	105.1	101.9	96.9	101.9	113.4
87.5°	60.8	64.1	60.8	60.8	52.6	47.6
90°	67.4	72.3	67.4	52.6	29.6	1.6
92.5°	69.0	75.6	69.0	57.5	55.9	11.5
95°	154.4	151.1	164.3	149.5	85.4	44.4
97.5°	239.9	274.4	248.1	179.1	115.0	70.6
100°	276.0	308.8	287.5	223.4	131.4	96.9
102.5°	318.7	354.8	331.8	261.2	147.9	121.6
105°	371.3	402.5	382.8	276.0	162.6	141.3
107.5°	399.2	446.8	407.4	282.6	172.5	159.4
110°	414.0	464.9	427.1	284.2	180.7	174.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	425.5	474.8	435.3	284.2	184.0	187.3
115°	425.5	483.0	435.3	279.3	188.9	195.5
117.5°	425.5	478.1	435.3	274.4	195.5	200.4
120°	410.7	476.4	423.8	267.8	197.1	203.7
122.5°	399.2	463.3	407.4	259.6	197.1	202.1
125°	377.8	445.2	387.7	249.7	193.9	198.8
127.5°	354.8	418.9	363.1	238.2	195.5	192.2
130°	333.5	389.3	338.4	226.7	188.9	184.0
132.5°	305.6	356.5	310.5	218.5	182.4	175.8
135°	279.3	325.3	285.8	211.9	174.1	167.6
137.5°	251.4	292.4	257.9	198.8	165.9	159.4
140°	218.5	251.4	225.1	184.0	161.0	151.1
142.5°	197.1	215.2	203.7	177.4	154.4	141.3
145°	184.0	193.9	188.9	170.9	151.1	131.4
147.5°	170.9	180.7	175.8	157.7	142.9	123.2
150°	165.9	165.9	172.5	146.2	138.0	118.3
152.5°	147.9	161.0	154.4	133.1	134.7	116.6
155°	126.5	133.1	133.1	128.1	134.7	116.6
157.5°	118.3	123.2	124.9	128.1	131.4	115.0
160°	118.3	119.9	124.9	129.8	129.8	115.0
162.5°	121.6	119.9	128.1	133.1	126.5	115.0
165°	124.9	123.2	131.4	134.7	123.2	115.0
167.5°	128.1	128.1	134.7	133.1	119.9	115.0
170°	128.1	131.4	134.7	128.1	118.3	115.0
172.5°	123.2	124.9	128.1	119.9	113.4	115.0
175°	116.6	115.0	119.9	115.0	113.4	113.4
177.5°	113.4	108.4	113.4	111.7	110.1	111.7
180°	110.1	110.1	110.1	110.1	110.1	110.1

(END OF REPORT)