

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: P192493

Luminaire Tested: **4WSL-LD2-40-UPL15-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192493
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-LD2-40-UPL15-UNV-L830-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L830
Light Source: (238) 3000K CCT, 80 CRI LEDS
EL236N0119D830
Ballast/Driver: OSRAM
OT50W

Summary

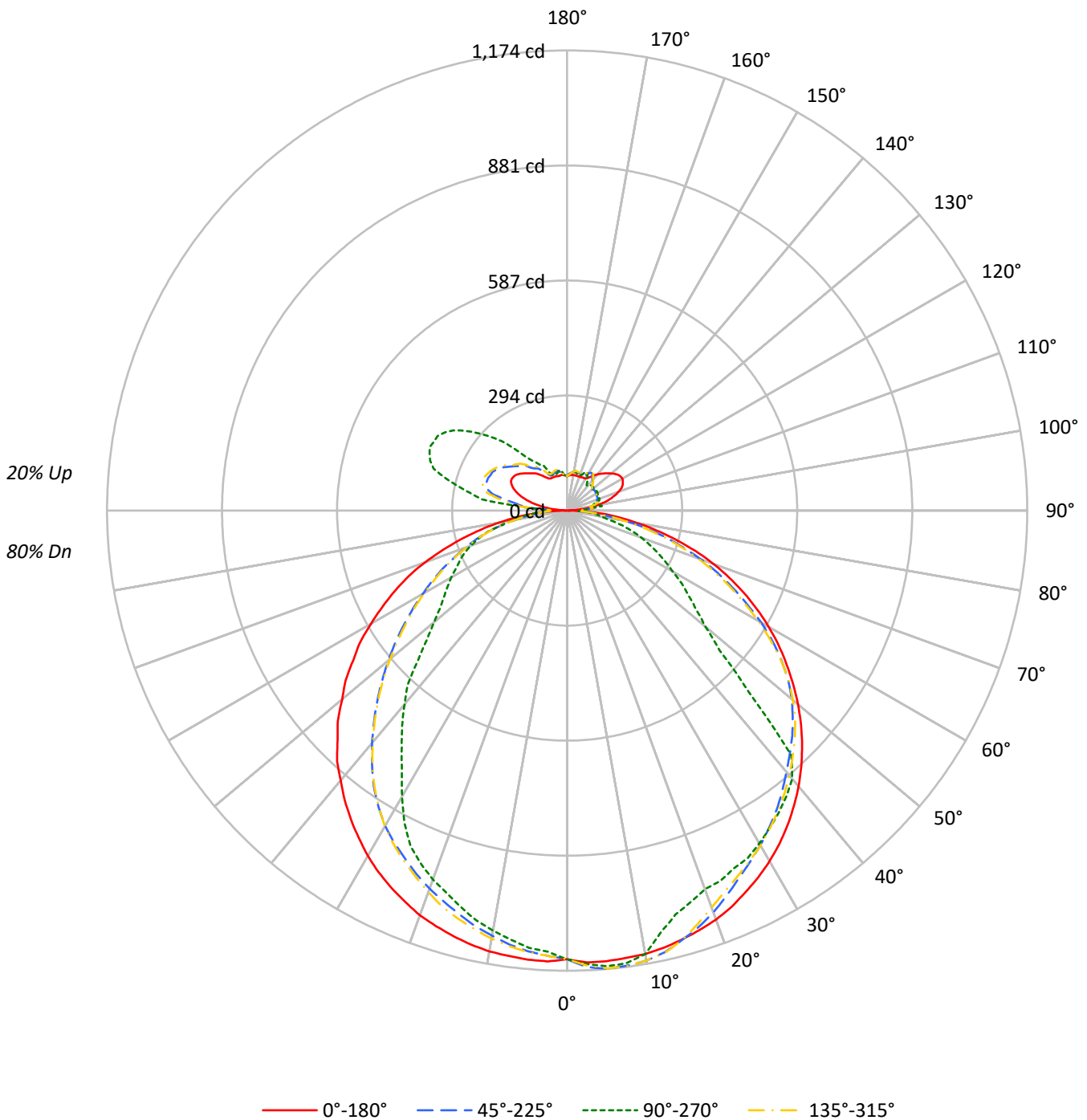
Lumens per Lamp: N/A
Luminaire Lumens: 4051.0 lumens
Efficiency: N/A
Efficacy: 115.4 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 35.1
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





TEST NUMBER: P192493

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L830-CD1-U

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°	6485	6485	6485	6485
5°	6562	6637	6539	6368
10°	6607	6607	6569	6259
15°	6644	6259	6590	6143
20°	6695	6196	6624	6037
25°	6720	6293	6638	5906
30°	6758	6413	6654	5511
35°	6780	6508	6653	5089
40°	6793	6609	6648	4772
45°	6792	5254	6633	4296
50°	6776	4054	6602	3904
55°	6750	3738	6581	3790
60°	6730	3529	6551	3872
65°	6677	3418	6500	4052
70°	6574	3331	6400	4331
75°	6271	3165	6070	4603
80°	5872	2874	5703	4587
85°	5896	3757	5467	5467



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	108.9	2.7
10°-20°	309.1	7.6
20°-30°	467.2	11.5
30°-40°	562.2	13.9
40°-50°	571.8	14.1
50°-60°	497.7	12.3
60°-70°	388.2	9.6
70°-80°	240.0	5.9
80°-90°	84.4	2.1
90°-100°	79.5	2.0
100°-110°	153.9	3.8
110°-120°	168.4	4.2
120°-130°	147.7	3.6
130°-140°	110.6	2.7
140°-150°	75.7	1.9
150°-160°	48.2	1.2
160°-170°	28.2	0.7
170°-180°	9.1	0.2
0°-30°	885.2	21.9
0°-40°	1447.5	35.7
0°-60°	2516.9	62.1
0°-90°	3229.6	79.7
90°-120°	401.9	9.9
90°-150°	735.9	18.2
90°-180°	821.0	20.3
0°-180°	4051.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1145	1145	1145	1145	1145	
5°	1154	1167	1150	1120	1154	110
15°	1133	1067	1124	1047	1133	320
25°	1075	1007	1062	945	1075	496
35°	980	941	962	736	980	613
45°	848	656	828	536	848	654
55°	683	378	666	384	683	611
65°	498	255	485	302	498	492
75°	286	145	277	210	286	303
85°	91	58	84	84	91	90
90°	1	37	1	58	1	7
95°	36	60	28	121	36	37
105°	113	75	109	322	113	118
115°	156	85	156	386	156	153
125°	159	89	159	356	159	141
135°	134	89	134	260	134	104
145°	105	89	108	155	105	67
155°	93	108	92	106	93	43
165°	92	97	91	99	92	26
175°	91	95	91	92	91	9
180°	88	88	88	88	88	



TEST NUMBER: P192493

CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7
2.5°	1153.9	1148.6	1165.7	1167.0	1157.8	1161.7	1161.7	1147.3	1151.2	1134.1	1136.8
5°	1153.9	1155.2	1173.6	1172.3	1167.0	1168.3	1172.3	1153.9	1149.9	1126.3	1128.9
7.5°	1151.2	1157.8	1170.9	1169.6	1164.4	1165.7	1172.3	1156.5	1146.0	1118.4	1117.1
10°	1148.6	1155.2	1165.7	1159.1	1148.6	1152.5	1165.7	1155.2	1142.0	1109.2	1101.3
12.5°	1142.0	1148.6	1153.9	1121.0	1102.6	1118.4	1155.2	1148.6	1134.1	1096.0	1085.5
15°	1132.8	1140.7	1134.1	1088.1	1067.1	1081.6	1134.1	1139.4	1123.6	1078.9	1065.8
17.5°	1122.3	1131.5	1114.4	1063.2	1047.4	1054.0	1106.5	1127.6	1111.8	1061.9	1046.1
20°	1110.5	1121.0	1090.8	1036.9	1027.7	1033.0	1077.6	1114.4	1098.7	1043.5	1026.4
22.5°	1094.7	1106.5	1063.2	1018.5	1022.4	1018.5	1051.4	1097.3	1080.3	1023.8	1004.0
25°	1075.0	1088.1	1035.6	1002.7	1006.7	1005.4	1029.0	1075.0	1061.9	1000.1	979.1
27.5°	1055.3	1068.4	1010.6	992.2	998.8	990.9	1008.0	1051.4	1040.8	975.1	955.4
30°	1033.0	1047.4	985.6	973.8	980.4	975.1	987.0	1027.7	1017.2	948.8	929.1
32.5°	1008.0	1022.4	959.4	951.5	960.7	954.1	962.0	1001.4	989.6	919.9	896.3
35°	980.4	994.8	931.8	931.8	941.0	933.1	937.0	975.1	962.0	891.0	859.5
37.5°	950.2	965.9	901.5	908.1	918.6	910.7	910.7	947.5	931.8	859.5	817.4
40°	918.6	935.7	870.0	884.4	893.6	884.4	881.8	918.6	898.9	827.9	774.1
42.5°	884.4	902.8	841.1	858.2	846.3	858.2	851.6	888.4	868.7	793.8	729.4
45°	847.7	871.3	812.2	801.7	655.8	793.8	821.4	856.9	827.9	760.9	684.7
47.5°	809.5	834.5	780.6	704.4	527.0	696.5	788.5	822.7	793.8	725.4	640.0
50°	768.8	797.7	747.8	620.3	460.0	612.4	751.7	787.2	749.1	687.3	595.3
52.5°	726.7	758.3	711.0	548.0	415.3	540.1	712.3	749.1	712.3	646.6	552.0
55°	683.4	716.2	667.6	481.0	378.5	479.7	666.3	708.3	666.3	605.8	508.6
57.5°	640.0	676.8	621.6	432.4	346.9	425.8	615.0	666.3	626.9	563.8	466.5
60°	594.0	628.2	571.7	379.8	311.5	378.5	563.8	622.9	578.2	520.4	425.8
62.5°	546.7	584.8	517.8	333.8	282.6	332.5	508.6	574.3	530.9	475.7	386.4
65°	498.1	534.9	466.5	297.0	255.0	294.4	457.3	524.4	484.9	431.1	349.6
67.5°	448.1	482.3	415.3	261.5	227.4	258.9	404.8	471.8	437.6	385.1	310.1
70°	396.9	428.4	362.7	227.4	201.1	226.0	353.5	417.9	386.4	337.7	274.7
72.5°	343.0	371.9	307.5	194.5	173.5	193.2	299.6	362.7	329.9	287.8	243.1
75°	286.5	314.1	256.3	161.6	144.6	160.3	248.4	303.6	277.3	241.8	206.3
77.5°	232.6	260.2	203.7	124.8	110.4	122.2	194.5	248.4	226.0	195.8	168.2
80°	180.0	202.4	149.8	93.3	88.1	93.3	145.9	190.6	174.8	153.8	131.4
82.5°	132.7	145.9	101.2	76.2	76.2	76.2	98.6	135.4	128.8	114.3	99.9
85°	90.7	90.7	68.3	57.8	57.8	57.8	67.0	80.2	84.1	76.2	76.2
87.5°	38.1	39.4	35.5	31.5	30.2	31.5	34.2	32.9	32.9	36.8	46.0
90°	1.3	17.1	28.9	35.5	36.8	34.2	26.3	15.8	1.3	22.3	40.7
92.5°	9.2	36.8	34.2	44.7	46.0	42.1	35.5	28.9	5.3	40.7	43.4
95°	35.5	43.4	67.0	68.3	60.5	57.8	65.7	40.7	27.6	55.2	110.4
97.5°	56.5	65.7	60.5	78.9	89.4	78.9	63.1	63.1	52.6	85.4	128.8
100°	77.5	69.7	61.8	68.3	78.9	69.7	59.1	69.7	73.6	99.9	157.7
102.5°	97.2	77.5	77.5	67.0	68.3	65.7	74.9	76.2	92.0	113.0	194.5
105°	113.0	80.2	81.5	76.2	74.9	76.2	81.5	81.5	109.1	124.8	211.6
107.5°	127.5	82.8	80.2	84.1	85.4	84.1	80.2	82.8	124.8	132.7	215.5
110°	139.3	84.1	81.5	84.1	88.1	84.1	81.5	85.4	138.0	140.6	218.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	149.8	85.4	84.1	82.8	86.7	82.8	84.1	88.1	148.5	144.6	218.2
115°	156.4	86.7	84.1	84.1	85.4	84.1	85.4	89.4	156.4	145.9	215.5
117.5°	160.3	89.4	85.4	86.7	88.1	86.7	85.4	92.0	161.6	151.1	214.2
120°	163.0	98.6	85.4	88.1	89.4	88.1	85.4	99.9	163.0	153.8	209.0
122.5°	161.6	102.5	86.7	88.1	90.7	88.1	86.7	103.8	161.6	152.4	202.4
125°	159.0	106.4	86.7	86.7	89.4	88.1	88.1	106.4	159.0	149.8	193.2
127.5°	153.8	115.6	86.7	88.1	88.1	88.1	88.1	114.3	153.8	151.1	184.0
130°	147.2	122.2	84.1	89.4	88.1	90.7	86.7	122.2	147.2	147.2	176.1
132.5°	140.6	124.8	84.1	89.4	89.4	90.7	85.4	124.8	140.6	141.9	168.2
135°	134.0	127.5	89.4	88.1	89.4	89.4	90.7	127.5	134.0	136.7	163.0
137.5°	127.5	128.8	95.9	84.1	88.1	85.4	98.6	128.8	128.8	128.8	155.1
140°	120.9	127.5	101.2	81.5	82.8	84.1	103.8	128.8	123.5	124.8	141.9
142.5°	113.0	123.5	105.1	88.1	81.5	90.7	107.8	127.5	115.6	120.9	135.4
145°	105.1	119.6	113.0	97.2	89.4	101.2	117.0	123.5	107.8	118.3	131.4
147.5°	98.6	113.0	114.3	102.5	98.6	106.4	118.3	118.3	99.9	113.0	122.2
150°	94.6	106.4	110.4	106.4	102.5	111.7	115.6	109.1	94.6	109.1	114.3
152.5°	93.3	101.2	101.2	111.7	110.4	117.0	106.4	103.8	92.0	105.1	103.8
155°	93.3	99.9	97.2	102.5	107.8	107.8	101.2	101.2	92.0	105.1	98.6
157.5°	92.0	101.2	97.2	95.9	98.6	101.2	101.2	102.5	92.0	102.5	98.6
160°	92.0	102.5	98.6	94.6	95.9	99.9	102.5	102.5	92.0	102.5	99.9
162.5°	92.0	99.9	99.9	95.9	95.9	101.2	102.5	101.2	92.0	99.9	102.5
165°	92.0	99.9	101.2	98.6	97.2	103.8	102.5	98.6	90.7	98.6	103.8
167.5°	92.0	97.2	102.5	99.9	99.9	103.8	103.8	97.2	90.7	94.6	103.8
170°	92.0	95.9	101.2	99.9	101.2	105.1	101.2	95.9	92.0	93.3	99.9
172.5°	92.0	93.3	98.6	99.9	99.9	102.5	98.6	93.3	92.0	90.7	95.9
175°	90.7	93.3	95.9	95.9	94.6	98.6	94.6	92.0	90.7	89.4	92.0
177.5°	89.4	90.7	93.3	93.3	90.7	93.3	90.7	89.4	89.4	88.1	90.7
180°	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1	88.1



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CATALOG NUMBER: 4WSL-LD2-40-UPL15-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1144.7	1144.7	1144.7	1144.7	1144.7	1144.7
2.5°	1135.5	1126.3	1128.9	1136.8	1135.5	1153.9
5°	1123.6	1119.7	1119.7	1131.5	1130.2	1153.9
7.5°	1110.5	1103.9	1107.9	1121.0	1124.9	1151.2
10°	1093.4	1088.1	1089.5	1109.2	1115.7	1148.6
12.5°	1076.3	1071.1	1075.0	1093.4	1102.6	1142.0
15°	1056.6	1047.4	1057.9	1077.6	1089.5	1132.8
17.5°	1033.0	1022.4	1033.0	1059.2	1073.7	1122.3
20°	1011.9	1001.4	1008.0	1035.6	1055.3	1110.5
22.5°	988.3	975.1	980.4	1010.6	1035.6	1094.7
25°	962.0	944.9	952.8	985.6	1013.2	1075.0
27.5°	927.8	898.9	918.6	959.4	985.6	1055.3
30°	880.5	842.4	873.9	930.4	960.7	1033.0
32.5°	825.3	784.6	818.7	895.0	931.8	1008.0
35°	771.4	735.9	767.5	858.2	902.8	980.4
37.5°	724.1	691.3	720.2	816.1	871.3	950.2
40°	675.5	645.3	674.2	771.4	839.8	918.6
42.5°	630.8	601.9	629.5	726.7	805.6	884.4
45°	583.5	536.2	580.9	680.7	768.8	847.7
47.5°	533.6	483.6	529.6	636.1	732.0	809.5
50°	487.6	442.9	484.9	590.1	692.6	768.8
52.5°	446.8	408.7	445.5	544.1	651.8	726.7
55°	408.7	383.7	410.0	502.0	613.7	683.4
57.5°	378.5	361.4	379.8	461.3	571.7	640.0
60°	352.2	341.7	353.5	420.5	527.0	594.0
62.5°	323.3	319.3	323.3	381.1	483.6	546.7
65°	298.3	302.3	298.3	345.6	437.6	498.1
67.5°	274.7	283.9	276.0	307.5	391.6	448.1
70°	248.4	261.5	249.7	273.4	344.3	396.9
72.5°	220.8	236.6	220.8	240.5	294.4	343.0
75°	191.9	210.3	193.2	205.0	247.1	286.5
77.5°	160.3	172.2	163.0	166.9	201.1	232.6
80°	127.5	140.6	128.8	131.4	159.0	180.0
82.5°	106.4	115.6	107.8	99.9	118.3	132.7
85°	78.9	84.1	81.5	77.5	81.5	90.7
87.5°	48.6	51.3	48.6	48.6	42.1	38.1
90°	53.9	57.8	53.9	42.1	23.7	1.3
92.5°	55.2	60.5	55.2	46.0	44.7	9.2
95°	123.5	120.9	131.4	119.6	68.3	35.5
97.5°	191.9	219.5	198.4	143.2	92.0	56.5
100°	220.8	247.1	230.0	178.7	105.1	77.5
102.5°	255.0	283.9	265.5	209.0	118.3	97.2
105°	297.0	322.0	306.2	220.8	130.1	113.0
107.5°	319.3	357.5	325.9	226.0	138.0	127.5
110°	331.2	371.9	341.7	227.4	144.6	139.3



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	340.4	379.8	348.3	227.4	147.2	149.8
115°	340.4	386.4	348.3	223.4	151.1	156.4
117.5°	340.4	382.4	348.3	219.5	156.4	160.3
120°	328.5	381.1	339.1	214.2	157.7	163.0
122.5°	319.3	370.6	325.9	207.6	157.7	161.6
125°	302.3	356.1	310.1	199.8	155.1	159.0
127.5°	283.9	335.1	290.4	190.6	156.4	153.8
130°	266.8	311.5	270.7	181.4	151.1	147.2
132.5°	244.4	285.2	248.4	174.8	145.9	140.6
135°	223.4	260.2	228.7	169.5	139.3	134.0
137.5°	201.1	233.9	206.3	159.0	132.7	127.5
140°	174.8	201.1	180.0	147.2	128.8	120.9
142.5°	157.7	172.2	163.0	141.9	123.5	113.0
145°	147.2	155.1	151.1	136.7	120.9	105.1
147.5°	136.7	144.6	140.6	126.2	114.3	98.6
150°	132.7	132.7	138.0	117.0	110.4	94.6
152.5°	118.3	128.8	123.5	106.4	107.8	93.3
155°	101.2	106.4	106.4	102.5	107.8	93.3
157.5°	94.6	98.6	99.9	102.5	105.1	92.0
160°	94.6	95.9	99.9	103.8	103.8	92.0
162.5°	97.2	95.9	102.5	106.4	101.2	92.0
165°	99.9	98.6	105.1	107.8	98.6	92.0
167.5°	102.5	102.5	107.8	106.4	95.9	92.0
170°	102.5	105.1	107.8	102.5	94.6	92.0
172.5°	98.6	99.9	102.5	95.9	90.7	92.0
175°	93.3	92.0	95.9	92.0	90.7	90.7
177.5°	90.7	86.7	90.7	89.4	88.1	89.4
180°	88.1	88.1	88.1	88.1	88.1	88.1

(END OF REPORT)