

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: P192451

Luminaire Tested: **4WSL-LD2-40-UPL8-UNV-L840-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192451
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-LD2-40-UPL8-UNV-L840-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L840
Light Source: (238) 4000K CCT, 80 CRI LEDS
EL236N0119D840
Ballast/Driver: OSRAM
OT50W

Summary

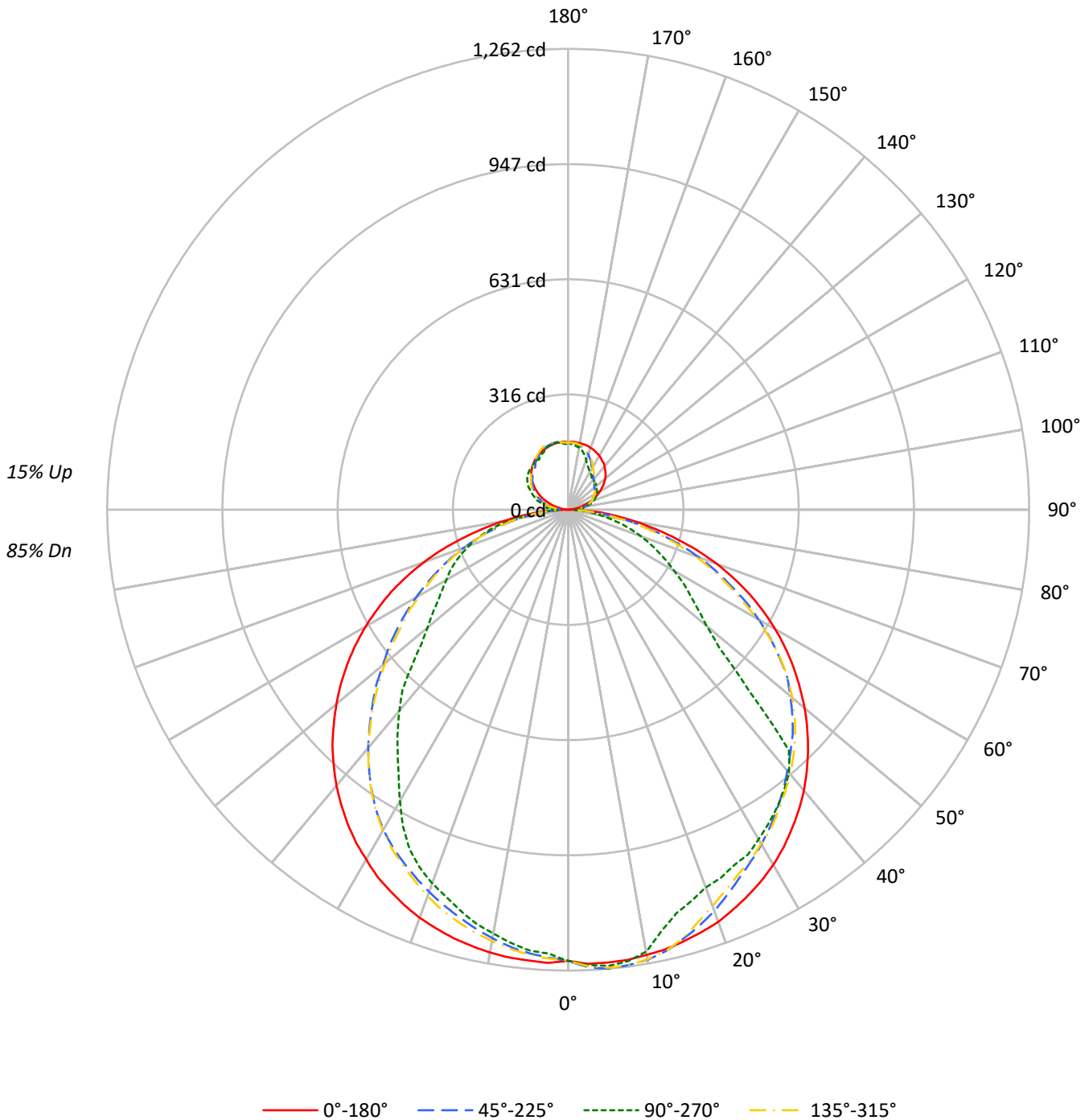
Lumens per Lamp: N/A
Luminaire Lumens: 4098.0 lumens
Efficiency: N/A
Efficacy: 116.8 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 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

TEST NUMBER: P192451

CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L840-CD1-U

Luminous Intensity Polar Plot





TEST NUMBER: P192451

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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	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°	6999	6999	6999	6999
5°	7079	7131	7049	6891
10°	7122	7069	7084	6780
15°	7176	6711	7122	6672
20°	7241	6635	7169	6564
25°	7285	6714	7202	6417
30°	7347	6819	7234	6023
35°	7383	6889	7273	5626
40°	7425	6955	7298	5312
45°	7440	5595	7312	4854
50°	7450	4349	7298	4431
55°	7434	4024	7290	4298
60°	7419	3792	7254	4361
65°	7341	3635	7181	4575
70°	7142	3505	6967	4777
75°	6689	3301	6486	5039
80°	6085	3021	5827	4789
85°	5935	3270	5330	4297



TEST NUMBER: P192451

CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L840-CD1-U

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.4	2.9
10°-20°	333.5	8.1
20°-30°	504.9	12.3
30°-40°	609.7	14.9
40°-50°	622.4	15.2
50°-60°	544.2	13.3
60°-70°	421.8	10.3
70°-80°	253.6	6.2
80°-90°	78.3	1.9
90°-100°	33.0	0.8
100°-110°	63.1	1.5
110°-120°	85.7	2.1
120°-130°	97.5	2.4
130°-140°	98.9	2.4
140°-150°	91.0	2.2
150°-160°	75.1	1.8
160°-170°	50.5	1.2
170°-180°	17.5	0.4
0°-30°	955.9	23.3
0°-40°	1565.5	38.2
0°-60°	2732.1	66.7
0°-90°	3485.8	85.1
90°-120°	181.9	4.4
90°-150°	469.2	11.4
90°-180°	612.0	14.9
0°-180°	4098.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1236	1236	1236	1236	1236	
5°	1245	1254	1240	1212	1245	119
15°	1224	1144	1214	1138	1224	346
25°	1165	1074	1152	1026	1165	538
35°	1068	996	1052	814	1068	668
45°	929	698	913	606	929	716
55°	753	407	738	435	753	673
65°	548	271	536	341	548	540
75°	306	151	296	230	306	324
85°	91	50	82	66	91	92
90°	1	28	1	32	1	6
95°	8	38	8	61	8	10
105°	42	65	41	82	42	45
115°	82	83	81	111	82	81
125°	118	95	115	136	118	104
135°	144	104	143	151	144	111
145°	163	111	161	160	163	102
155°	176	130	175	169	176	81
165°	184	161	182	184	184	52
175°	186	177	186	182	186	18
180°	184	184	184	184	184	



TEST NUMBER: P192451

CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5
2.5°	1244.8	1238.1	1254.0	1256.7	1247.4	1250.0	1251.4	1236.8	1242.1	1222.3	1227.6
5°	1244.8	1243.4	1261.9	1259.3	1254.0	1255.3	1259.3	1242.1	1239.5	1215.6	1219.6
7.5°	1243.4	1246.1	1258.0	1255.3	1247.4	1251.4	1258.0	1244.8	1236.8	1209.0	1207.7
10°	1238.1	1242.1	1251.4	1243.4	1228.9	1235.5	1250.0	1242.1	1231.5	1198.5	1191.8
12.5°	1232.8	1235.5	1238.1	1205.1	1181.3	1197.1	1238.1	1235.5	1223.6	1186.5	1174.6
15°	1223.6	1227.6	1217.0	1169.4	1144.2	1160.1	1214.3	1224.9	1214.3	1169.4	1154.8
17.5°	1213.0	1217.0	1194.5	1141.6	1123.1	1131.0	1183.9	1211.7	1202.4	1153.5	1135.0
20°	1201.1	1205.1	1169.4	1112.5	1100.6	1107.2	1154.8	1197.1	1189.2	1135.0	1113.8
22.5°	1183.9	1190.5	1140.2	1092.6	1091.3	1091.3	1127.0	1179.9	1172.0	1112.5	1090.0
25°	1165.4	1172.0	1111.1	1074.1	1074.1	1074.1	1101.9	1157.4	1152.2	1088.7	1066.2
27.5°	1145.5	1152.2	1084.7	1060.9	1064.9	1058.2	1080.7	1132.3	1132.3	1064.9	1041.0
30°	1123.1	1129.7	1058.2	1039.7	1042.4	1039.7	1056.9	1105.9	1105.9	1037.1	1011.9
32.5°	1096.6	1103.2	1029.1	1014.6	1019.9	1017.2	1034.4	1079.4	1080.7	1008.0	977.5
35°	1067.5	1075.4	998.7	990.8	996.1	992.1	1004.0	1051.6	1051.6	976.2	937.9
37.5°	1037.1	1045.0	967.0	964.3	969.6	965.6	974.9	1022.5	1019.9	943.2	895.5
40°	1004.0	1013.3	933.9	933.9	940.5	937.9	945.8	992.1	986.8	910.1	851.9
42.5°	967.0	978.9	900.8	902.1	894.2	904.8	912.7	960.3	949.8	873.0	804.3
45°	928.6	943.2	869.1	845.3	698.4	836.0	878.3	928.6	912.7	836.0	758.0
47.5°	887.6	906.1	832.0	744.7	562.2	732.8	841.3	888.9	870.4	796.3	713.0
50°	845.3	866.4	793.7	658.8	493.4	645.5	800.3	849.2	828.1	755.3	661.4
52.5°	799.0	822.8	756.6	583.4	447.1	571.4	758.0	810.9	784.4	711.7	619.1
55°	752.7	777.8	706.4	518.5	407.4	508.0	709.0	761.9	738.1	666.7	572.8
57.5°	705.1	730.2	656.1	461.7	373.0	451.1	653.5	717.0	690.5	620.4	526.5
60°	654.8	679.9	601.9	410.1	334.7	402.1	596.6	666.7	640.2	572.8	481.5
62.5°	601.9	627.0	550.3	362.4	302.9	355.8	534.4	617.7	588.6	522.5	435.2
65°	547.6	566.2	489.4	317.5	271.2	312.2	478.9	556.9	535.7	469.6	391.5
67.5°	490.8	509.3	436.5	277.8	240.7	272.5	424.6	502.7	478.9	418.0	347.9
70°	431.2	447.1	381.0	239.4	211.6	235.5	367.7	441.8	420.6	363.8	301.6
72.5°	370.4	384.9	321.4	203.7	181.2	201.1	308.2	381.0	359.8	306.9	259.3
75°	305.6	320.1	265.9	168.0	150.8	165.3	254.0	316.1	296.3	252.7	215.6
77.5°	244.7	261.9	210.3	132.3	120.4	129.6	199.7	255.3	235.5	202.4	173.3
80°	186.5	201.1	156.1	100.5	92.6	99.2	145.5	194.5	178.6	156.1	134.9
82.5°	134.9	142.9	107.1	74.1	70.1	72.8	99.2	137.6	129.6	112.4	99.2
85°	91.3	90.0	66.1	51.6	50.3	51.6	59.5	83.3	82.0	75.4	63.5
87.5°	38.4	35.7	30.4	21.2	18.5	19.8	23.8	31.7	30.4	31.7	30.4
90°	1.3	13.2	21.2	26.5	27.8	26.5	21.2	13.2	1.3	14.6	23.8
92.5°	2.6	17.2	25.1	29.1	31.7	29.1	23.8	17.2	2.6	22.5	23.8
95°	7.9	23.8	29.1	35.7	38.4	35.7	29.1	22.5	7.9	19.8	35.7
97.5°	15.9	30.4	34.4	39.7	41.0	38.4	33.1	30.4	14.6	35.7	37.0
100°	23.8	38.4	45.0	45.0	46.3	45.0	43.7	37.0	22.5	39.7	45.0
102.5°	33.1	43.7	51.6	55.6	55.6	55.6	51.6	43.7	30.4	48.9	62.2
105°	42.3	47.6	56.9	62.2	64.8	62.2	56.9	48.9	41.0	56.9	66.1
107.5°	52.9	51.6	62.2	67.5	70.1	67.5	62.2	52.9	50.3	63.5	74.1
110°	63.5	56.9	67.5	72.8	74.1	72.8	67.5	56.9	60.8	71.4	82.0



TEST NUMBER: P192451

CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	72.8	60.8	72.8	78.0	79.4	78.0	72.8	62.2	70.1	76.7	90.0
115°	82.0	64.8	75.4	82.0	83.3	82.0	75.4	66.1	80.7	83.3	96.6
117.5°	91.3	70.1	78.0	86.0	87.3	86.0	79.4	71.4	90.0	91.3	103.2
120°	100.5	76.7	82.0	88.6	91.3	90.0	82.0	78.0	97.9	97.9	108.5
122.5°	108.5	82.0	86.0	91.3	93.9	91.3	86.0	84.7	107.1	104.5	115.1
125°	117.7	87.3	88.6	93.9	95.2	93.9	90.0	88.6	115.1	109.8	119.1
127.5°	124.3	93.9	91.3	96.6	97.9	96.6	92.6	95.2	123.0	120.4	123.0
130°	132.3	100.5	93.9	99.2	100.5	100.5	93.9	103.2	129.6	128.3	128.3
132.5°	138.9	107.1	96.6	101.9	103.2	103.2	97.9	108.5	136.2	134.9	132.3
135°	144.2	116.4	101.9	101.9	104.5	104.5	103.2	117.7	142.9	141.5	138.9
137.5°	149.5	124.3	105.8	103.2	104.5	104.5	108.5	125.7	148.2	148.2	142.9
140°	154.8	132.3	108.5	105.8	105.8	108.5	112.4	133.6	153.4	153.4	144.2
142.5°	160.1	138.9	112.4	109.8	107.1	112.4	116.4	141.5	157.4	158.7	148.2
145°	162.7	145.5	117.7	113.8	111.1	117.7	123.0	148.2	161.4	164.0	156.1
147.5°	166.7	152.1	124.3	116.4	116.4	120.4	128.3	153.4	165.3	168.0	160.1
150°	170.6	157.4	129.6	120.4	117.7	124.3	133.6	158.7	169.3	172.0	165.3
152.5°	173.3	162.7	137.6	125.7	123.0	131.0	142.9	162.7	172.0	174.6	170.6
155°	175.9	166.7	146.8	131.0	129.6	136.2	150.8	166.7	174.6	177.3	174.6
157.5°	178.6	170.6	153.4	138.9	133.6	144.2	157.4	172.0	177.3	179.9	178.6
160°	179.9	173.3	161.4	146.8	144.2	153.4	164.0	173.3	178.6	182.5	181.2
162.5°	182.5	175.9	166.7	156.1	153.4	161.4	169.3	177.3	181.2	183.9	183.9
165°	183.9	178.6	172.0	164.0	161.4	169.3	173.3	179.9	182.5	183.9	185.2
167.5°	183.9	181.2	175.9	169.3	168.0	174.6	178.6	182.5	183.9	183.9	186.5
170°	185.2	182.5	178.6	174.6	173.3	178.6	179.9	183.9	185.2	183.9	187.8
172.5°	185.2	183.9	181.2	177.3	174.6	181.2	182.5	183.9	185.2	183.9	186.5
175°	186.5	183.9	183.9	181.2	177.3	183.9	183.9	183.9	186.5	183.9	185.2
177.5°	186.5	183.9	183.9	182.5	179.9	183.9	183.9	183.9	186.5	183.9	185.2
180°	183.9	183.9	183.9	183.9	183.9	183.9	183.9	183.9	183.9	183.9	183.9



TEST NUMBER: P192451

CATALOG NUMBER: 4WSL-LD2-40-UPL8-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1235.5	1235.5	1235.5	1235.5	1235.5	1235.5
2.5°	1226.2	1217.0	1219.6	1230.2	1226.2	1244.8
5°	1217.0	1211.7	1211.7	1223.6	1222.3	1244.8
7.5°	1202.4	1197.1	1199.8	1213.0	1215.6	1243.4
10°	1185.2	1178.6	1181.3	1199.8	1206.4	1238.1
12.5°	1166.7	1161.4	1164.1	1185.2	1194.5	1232.8
15°	1145.5	1137.6	1145.5	1168.0	1179.9	1223.6
17.5°	1121.7	1111.1	1120.4	1149.5	1164.1	1213.0
20°	1097.9	1088.7	1094.0	1125.7	1146.9	1201.1
22.5°	1074.1	1060.9	1066.2	1099.2	1125.7	1183.9
25°	1046.3	1026.5	1037.1	1072.8	1103.2	1165.4
27.5°	1009.3	978.9	1001.4	1046.3	1076.8	1145.5
30°	960.3	920.7	953.7	1014.6	1049.0	1123.1
32.5°	906.1	863.8	900.8	978.9	1019.9	1096.6
35°	851.9	813.5	846.6	939.2	989.5	1067.5
37.5°	800.3	767.2	797.6	896.9	957.7	1037.1
40°	751.3	718.3	750.0	850.6	923.3	1004.0
42.5°	702.4	672.0	702.4	801.6	887.6	967.0
45°	653.5	605.8	650.8	754.0	849.2	928.6
47.5°	600.5	545.0	596.6	702.4	808.2	887.6
50°	550.3	502.7	547.6	654.8	765.9	845.3
52.5°	506.6	468.3	504.0	605.8	722.2	799.0
55°	465.6	435.2	465.6	558.2	675.9	752.7
57.5°	428.6	408.7	429.9	517.2	628.3	705.1
60°	396.8	384.9	398.2	466.9	580.7	654.8
62.5°	366.4	365.1	367.7	427.3	530.4	601.9
65°	334.7	341.3	334.7	384.9	480.2	547.6
67.5°	302.9	316.1	305.6	342.6	425.9	490.8
70°	273.8	288.4	273.8	299.0	371.7	431.2
72.5°	240.7	259.3	240.7	257.9	314.8	370.4
75°	209.0	230.2	210.3	215.6	260.6	305.6
77.5°	174.6	194.5	178.6	174.6	210.3	244.7
80°	138.9	146.8	138.9	137.6	162.7	186.5
82.5°	96.6	103.2	96.6	100.5	119.1	134.9
85°	63.5	66.1	63.5	64.8	79.4	91.3
87.5°	26.5	26.5	26.5	33.1	35.7	38.4
90°	29.1	31.7	29.1	23.8	14.6	1.3
92.5°	30.4	33.1	30.4	26.5	17.2	2.6
95°	54.2	60.8	51.6	33.1	27.8	7.9
97.5°	43.7	47.6	45.0	38.4	34.4	15.9
100°	51.6	55.6	51.6	54.2	42.3	23.8
102.5°	60.8	63.5	62.2	63.5	51.6	33.1
105°	79.4	82.0	79.4	68.8	59.5	42.3
107.5°	84.7	91.3	86.0	76.7	67.5	52.9
110°	91.3	96.6	92.6	84.7	74.1	63.5



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	97.9	104.5	100.5	93.9	79.4	72.8
115°	105.8	111.1	108.5	100.5	87.3	82.0
117.5°	113.8	117.7	115.1	105.8	95.2	91.3
120°	120.4	125.7	123.0	112.4	101.9	100.5
122.5°	125.7	131.0	128.3	119.1	108.5	108.5
125°	131.0	136.2	133.6	124.3	113.8	117.7
127.5°	134.9	141.5	138.9	128.3	125.7	124.3
130°	140.2	144.2	142.9	132.3	132.3	132.3
132.5°	142.9	148.2	145.5	137.6	140.2	138.9
135°	144.2	150.8	148.2	144.2	146.8	144.2
137.5°	146.8	152.1	150.8	148.2	153.4	149.5
140°	150.8	153.4	154.8	150.8	158.7	154.8
142.5°	154.8	156.1	158.7	154.8	164.0	160.1
145°	157.4	160.1	162.7	162.7	168.0	162.7
147.5°	157.4	161.4	161.4	165.3	173.3	166.7
150°	161.4	158.7	166.7	170.6	175.9	170.6
152.5°	166.7	165.3	172.0	175.9	178.6	173.3
155°	168.0	169.3	173.3	179.9	181.2	175.9
157.5°	173.3	172.0	178.6	183.9	183.9	178.6
160°	177.3	177.3	183.9	186.5	185.2	179.9
162.5°	181.2	181.2	187.8	187.8	186.5	182.5
165°	183.9	183.9	190.5	189.2	186.5	183.9
167.5°	185.2	186.5	191.8	190.5	186.5	183.9
170°	186.5	186.5	191.8	189.2	186.5	185.2
172.5°	186.5	185.2	190.5	187.8	185.2	185.2
175°	185.2	182.5	187.8	185.2	185.2	186.5
177.5°	183.9	179.9	183.9	183.9	185.2	186.5
180°	183.9	183.9	183.9	183.9	183.9	183.9

(END OF REPORT)