

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: P192445

Luminaire Tested: **4WSL-LD2-35-UPL8-UNV-L830-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192445
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-LD2-35-UPL8-UNV-L830-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L830
Light Source: (238) 3000K CCT, 80 CRI LEDS
EL236N0119D830
Ballast/Driver: OSRAM
OT30W

Summary

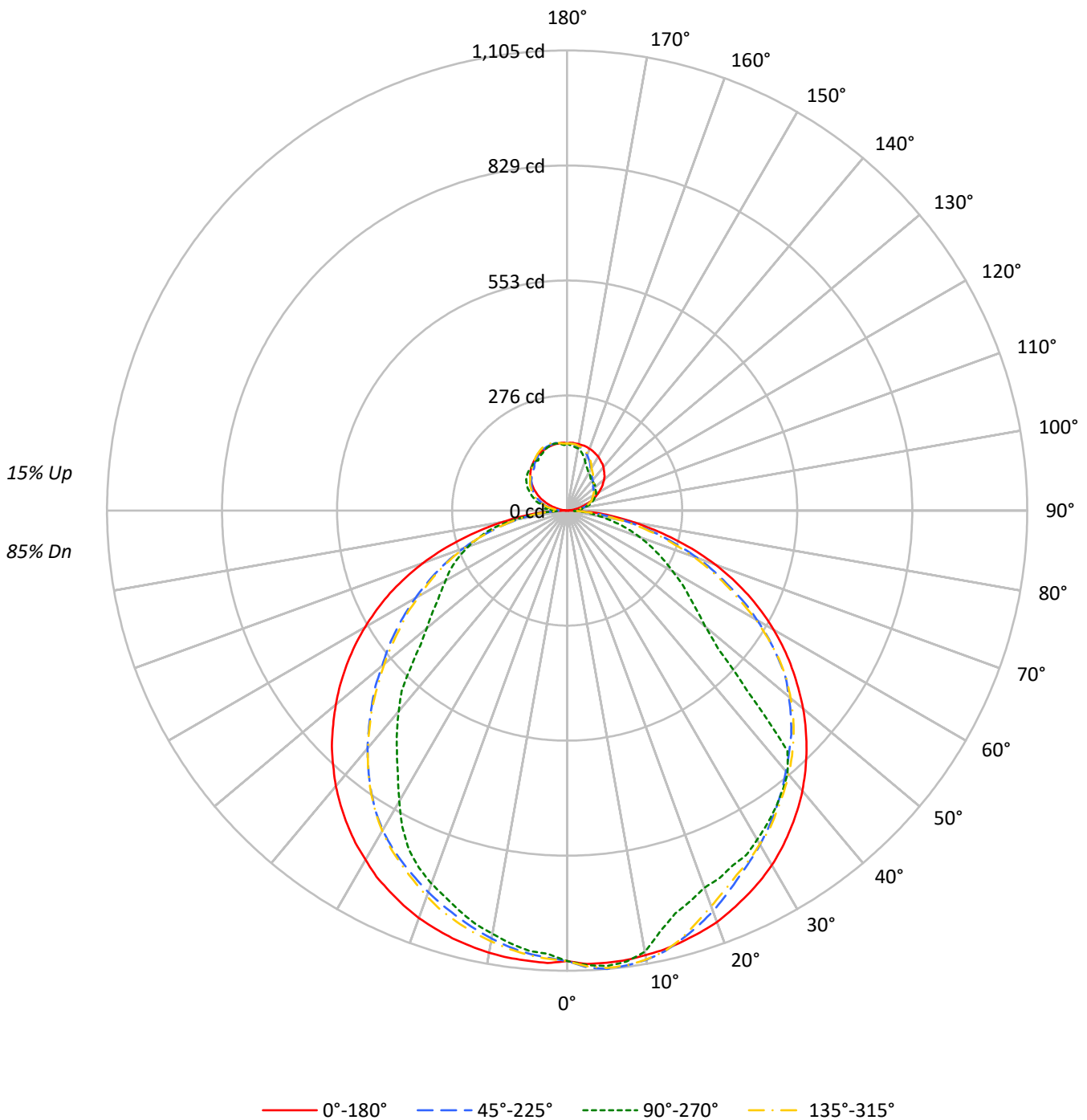
Lumens per Lamp: N/A
Luminaire Lumens: 3588.0 lumens
Efficiency: N/A
Efficacy: 117.3 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 30.6
Input Voltage (V): NR
Input Current (A_{in}): 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: P192445

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L830-CD1-U

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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°	6128	6128	6128	6128
5°	6198	6244	6171	6033
10°	6236	6189	6203	5936
15°	6283	5876	6236	5842
20°	6340	5809	6277	5747
25°	6378	5878	6306	5618
30°	6432	5970	6334	5273
35°	6464	6031	6368	4926
40°	6501	6090	6390	4651
45°	6514	4899	6402	4249
50°	6523	3807	6390	3879
55°	6509	3523	6384	3763
60°	6496	3320	6352	3818
65°	6428	3182	6288	4005
70°	6255	3069	6101	4182
75°	5855	2889	5678	4411
80°	5328	2646	5103	4196
85°	5194	2860	4667	3764



TEST NUMBER: P192445

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L830-CD1-U

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	102.8	2.9
10°-20°	292.0	8.1
20°-30°	442.1	12.3
30°-40°	533.8	14.9
40°-50°	545.0	15.2
50°-60°	476.5	13.3
60°-70°	369.3	10.3
70°-80°	222.0	6.2
80°-90°	68.5	1.9
90°-100°	28.9	0.8
100°-110°	55.3	1.5
110°-120°	75.1	2.1
120°-130°	85.3	2.4
130°-140°	86.5	2.4
140°-150°	79.7	2.2
150°-160°	65.7	1.8
160°-170°	44.2	1.2
170°-180°	15.4	0.4
0°-30°	836.9	23.3
0°-40°	1370.7	38.2
0°-60°	2392.1	66.7
0°-90°	3052.0	85.1
90°-120°	159.2	4.4
90°-150°	410.7	11.4
90°-180°	536.0	14.9
0°-180°	3588.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1082	1082	1082	1082	1082	
5°	1090	1098	1085	1061	1090	104
15°	1071	1002	1063	996	1071	303
25°	1020	940	1009	899	1020	471
35°	935	872	921	712	935	585
45°	813	612	799	530	813	627
55°	659	357	646	381	659	589
65°	480	237	469	299	480	473
75°	268	132	259	202	268	284
85°	80	44	72	58	80	81
90°	1	24	1	28	1	5
95°	7	34	7	53	7	9
105°	37	57	36	72	37	40
115°	72	73	71	97	72	71
125°	103	83	101	119	103	91
135°	126	92	125	132	126	97
145°	142	97	141	140	142	90
155°	154	114	153	148	154	71
165°	161	141	160	161	161	45
175°	163	155	163	160	163	16
180°	161	161	161	161	161	



TEST NUMBER: P192445

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7
2.5°	1089.8	1084.0	1097.9	1100.3	1092.2	1094.5	1095.6	1082.9	1087.5	1070.2	1074.8
5°	1089.8	1088.7	1104.9	1102.6	1097.9	1099.1	1102.6	1087.5	1085.2	1064.4	1067.8
7.5°	1088.7	1091.0	1101.4	1099.1	1092.2	1095.6	1101.4	1089.8	1082.9	1058.6	1057.4
10°	1084.0	1087.5	1095.6	1088.7	1075.9	1081.7	1094.5	1087.5	1078.3	1049.3	1043.5
12.5°	1079.4	1081.7	1084.0	1055.1	1034.2	1048.1	1084.0	1081.7	1071.3	1038.9	1028.5
15°	1071.3	1074.8	1065.5	1023.8	1001.8	1015.7	1063.2	1072.5	1063.2	1023.8	1011.1
17.5°	1062.0	1065.5	1045.8	999.5	983.3	990.2	1036.6	1060.9	1052.8	1009.9	993.7
20°	1051.6	1055.1	1023.8	974.0	963.6	969.4	1011.1	1048.1	1041.2	993.7	975.2
22.5°	1036.6	1042.4	998.3	956.7	955.5	955.5	986.8	1033.1	1026.1	974.0	954.3
25°	1020.3	1026.1	972.9	940.4	940.4	940.4	964.8	1013.4	1008.8	953.2	933.5
27.5°	1003.0	1008.8	949.7	928.9	932.3	926.5	946.2	991.4	991.4	932.3	911.5
30°	983.3	989.1	926.5	910.3	912.6	910.3	925.4	968.2	968.2	908.0	886.0
32.5°	960.1	965.9	901.1	888.3	893.0	890.6	905.7	945.1	946.2	882.5	855.9
35°	934.6	941.6	874.4	867.5	872.1	868.6	879.1	920.7	920.7	854.7	821.1
37.5°	908.0	915.0	846.6	844.3	848.9	845.5	853.6	895.3	893.0	825.8	784.1
40°	879.1	887.2	817.7	817.7	823.5	821.1	828.1	868.6	864.0	796.8	745.9
42.5°	846.6	857.0	788.7	789.9	782.9	792.2	799.1	840.8	831.6	764.4	704.2
45°	813.0	825.8	760.9	740.1	611.5	732.0	769.0	813.0	799.1	732.0	663.6
47.5°	777.1	793.3	728.5	652.1	492.2	641.6	736.6	778.3	762.1	697.2	624.3
50°	740.1	758.6	694.9	576.8	432.0	565.2	700.7	743.5	725.0	661.3	579.1
52.5°	699.5	720.4	662.5	510.8	391.5	500.3	663.6	710.0	686.8	623.1	542.0
55°	659.0	681.0	618.5	454.0	356.7	444.7	620.8	667.1	646.3	583.7	501.5
57.5°	617.3	639.3	574.5	404.2	326.6	394.9	572.1	627.7	604.6	543.2	461.0
60°	573.3	595.3	527.0	359.0	293.0	352.1	522.3	583.7	560.6	501.5	421.6
62.5°	527.0	549.0	481.8	317.3	265.2	311.5	467.9	540.9	515.4	457.5	381.0
65°	479.5	495.7	428.5	278.0	237.4	273.3	419.3	487.6	469.1	411.2	342.8
67.5°	429.7	445.9	382.2	243.2	210.8	238.6	371.8	440.1	419.3	366.0	304.6
70°	377.6	391.5	333.6	209.6	185.3	206.2	322.0	386.8	368.3	318.5	264.1
72.5°	324.3	337.0	281.4	178.4	158.7	176.0	269.9	333.6	315.0	268.7	227.0
75°	267.5	280.3	232.8	147.1	132.0	144.8	222.4	276.8	259.4	221.2	188.8
77.5°	214.3	229.3	184.1	115.8	105.4	113.5	174.9	223.5	206.2	177.2	151.7
80°	163.3	176.0	136.7	88.0	81.1	86.9	127.4	170.3	156.4	136.7	118.1
82.5°	118.1	125.1	93.8	64.9	61.4	63.7	86.9	120.4	113.5	98.4	86.9
85°	79.9	78.8	57.9	45.2	44.0	45.2	52.1	73.0	71.8	66.0	55.6
87.5°	33.6	31.3	26.6	18.5	16.2	17.4	20.8	27.8	26.6	27.8	26.6
90°	1.2	11.6	18.5	23.2	24.3	23.2	18.5	11.6	1.2	12.7	20.8
92.5°	2.3	15.1	22.0	25.5	27.8	25.5	20.8	15.1	2.3	19.7	20.8
95°	6.9	20.8	25.5	31.3	33.6	31.3	25.5	19.7	6.9	17.4	31.3
97.5°	13.9	26.6	30.1	34.7	35.9	33.6	29.0	26.6	12.7	31.3	32.4
100°	20.8	33.6	39.4	39.4	40.5	39.4	38.2	32.4	19.7	34.7	39.4
102.5°	29.0	38.2	45.2	48.6	48.6	48.6	45.2	38.2	26.6	42.9	54.4
105°	37.1	41.7	49.8	54.4	56.8	54.4	49.8	42.9	35.9	49.8	57.9
107.5°	46.3	45.2	54.4	59.1	61.4	59.1	54.4	46.3	44.0	55.6	64.9
110°	55.6	49.8	59.1	63.7	64.9	63.7	59.1	49.8	53.3	62.5	71.8



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CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	63.7	53.3	63.7	68.3	69.5	68.3	63.7	54.4	61.4	67.2	78.8
115°	71.8	56.8	66.0	71.8	73.0	71.8	66.0	57.9	70.6	73.0	84.5
117.5°	79.9	61.4	68.3	75.3	76.4	75.3	69.5	62.5	78.8	79.9	90.3
120°	88.0	67.2	71.8	77.6	79.9	78.8	71.8	68.3	85.7	85.7	95.0
122.5°	95.0	71.8	75.3	79.9	82.2	79.9	75.3	74.1	93.8	91.5	100.8
125°	103.1	76.4	77.6	82.2	83.4	82.2	78.8	77.6	100.8	96.1	104.2
127.5°	108.9	82.2	79.9	84.5	85.7	84.5	81.1	83.4	107.7	105.4	107.7
130°	115.8	88.0	82.2	86.9	88.0	88.0	82.2	90.3	113.5	112.3	112.3
132.5°	121.6	93.8	84.5	89.2	90.3	90.3	85.7	95.0	119.3	118.1	115.8
135°	126.2	101.9	89.2	89.2	91.5	91.5	90.3	103.1	125.1	123.9	121.6
137.5°	130.9	108.9	92.7	90.3	91.5	91.5	95.0	110.0	129.7	129.7	125.1
140°	135.5	115.8	95.0	92.7	92.7	95.0	98.4	117.0	134.3	134.3	126.2
142.5°	140.1	121.6	98.4	96.1	93.8	98.4	101.9	123.9	137.8	139.0	129.7
145°	142.5	127.4	103.1	99.6	97.3	103.1	107.7	129.7	141.3	143.6	136.7
147.5°	145.9	133.2	108.9	101.9	101.9	105.4	112.3	134.3	144.8	147.1	140.1
150°	149.4	137.8	113.5	105.4	103.1	108.9	117.0	139.0	148.2	150.6	144.8
152.5°	151.7	142.5	120.4	110.0	107.7	114.7	125.1	142.5	150.6	152.9	149.4
155°	154.0	145.9	128.6	114.7	113.5	119.3	132.0	145.9	152.9	155.2	152.9
157.5°	156.4	149.4	134.3	121.6	117.0	126.2	137.8	150.6	155.2	157.5	156.4
160°	157.5	151.7	141.3	128.6	126.2	134.3	143.6	151.7	156.4	159.8	158.7
162.5°	159.8	154.0	145.9	136.7	134.3	141.3	148.2	155.2	158.7	161.0	161.0
165°	161.0	156.4	150.6	143.6	141.3	148.2	151.7	157.5	159.8	161.0	162.1
167.5°	161.0	158.7	154.0	148.2	147.1	152.9	156.4	159.8	161.0	161.0	163.3
170°	162.1	159.8	156.4	152.9	151.7	156.4	157.5	161.0	162.1	161.0	164.5
172.5°	162.1	161.0	158.7	155.2	152.9	158.7	159.8	161.0	162.1	161.0	163.3
175°	163.3	161.0	161.0	158.7	155.2	161.0	161.0	161.0	163.3	161.0	162.1
177.5°	163.3	161.0	161.0	159.8	157.5	161.0	161.0	161.0	163.3	161.0	162.1
180°	161.0	161.0	161.0	161.0	161.0	161.0	161.0	161.0	161.0	161.0	161.0



TEST NUMBER: P192445

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1081.7	1081.7	1081.7	1081.7	1081.7	1081.7
2.5°	1073.6	1065.5	1067.8	1077.1	1073.6	1089.8
5°	1065.5	1060.9	1060.9	1071.3	1070.2	1089.8
7.5°	1052.8	1048.1	1050.5	1062.0	1064.4	1088.7
10°	1037.7	1031.9	1034.2	1050.5	1056.3	1084.0
12.5°	1021.5	1016.9	1019.2	1037.7	1045.8	1079.4
15°	1003.0	996.0	1003.0	1022.7	1033.1	1071.3
17.5°	982.1	972.9	981.0	1006.5	1019.2	1062.0
20°	961.3	953.2	957.8	985.6	1004.1	1051.6
22.5°	940.4	928.9	933.5	962.4	985.6	1036.6
25°	916.1	898.7	908.0	939.3	965.9	1020.3
27.5°	883.7	857.0	876.7	916.1	942.8	1003.0
30°	840.8	806.1	835.0	888.3	918.4	983.3
32.5°	793.3	756.3	788.7	857.0	893.0	960.1
35°	745.9	712.3	741.2	822.3	866.3	934.6
37.5°	700.7	671.7	698.4	785.2	838.5	908.0
40°	657.8	628.9	656.7	744.7	808.4	879.1
42.5°	615.0	588.4	615.0	701.9	777.1	846.6
45°	572.1	530.4	569.8	660.2	743.5	813.0
47.5°	525.8	477.2	522.3	615.0	707.6	777.1
50°	481.8	440.1	479.5	573.3	670.6	740.1
52.5°	443.6	410.0	441.3	530.4	632.4	699.5
55°	407.7	381.0	407.7	488.7	591.8	659.0
57.5°	375.2	357.9	376.4	452.8	550.1	617.3
60°	347.5	337.0	348.6	408.8	508.4	573.3
62.5°	320.8	319.7	322.0	374.1	464.4	527.0
65°	293.0	298.8	293.0	337.0	420.4	479.5
67.5°	265.2	276.8	267.5	300.0	372.9	429.7
70°	239.7	252.5	239.7	261.7	325.4	377.6
72.5°	210.8	227.0	210.8	225.8	275.6	324.3
75°	183.0	201.5	184.1	188.8	228.2	267.5
77.5°	152.9	170.3	156.4	152.9	184.1	214.3
80°	121.6	128.6	121.6	120.4	142.5	163.3
82.5°	84.5	90.3	84.5	88.0	104.2	118.1
85°	55.6	57.9	55.6	56.8	69.5	79.9
87.5°	23.2	23.2	23.2	29.0	31.3	33.6
90°	25.5	27.8	25.5	20.8	12.7	1.2
92.5°	26.6	29.0	26.6	23.2	15.1	2.3
95°	47.5	53.3	45.2	29.0	24.3	6.9
97.5°	38.2	41.7	39.4	33.6	30.1	13.9
100°	45.2	48.6	45.2	47.5	37.1	20.8
102.5°	53.3	55.6	54.4	55.6	45.2	29.0
105°	69.5	71.8	69.5	60.2	52.1	37.1
107.5°	74.1	79.9	75.3	67.2	59.1	46.3
110°	79.9	84.5	81.1	74.1	64.9	55.6



TEST NUMBER: P192445

CATALOG NUMBER: 4WSL-LD2-35-UPL8-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	85.7	91.5	88.0	82.2	69.5	63.7
115°	92.7	97.3	95.0	88.0	76.4	71.8
117.5°	99.6	103.1	100.8	92.7	83.4	79.9
120°	105.4	110.0	107.7	98.4	89.2	88.0
122.5°	110.0	114.7	112.3	104.2	95.0	95.0
125°	114.7	119.3	117.0	108.9	99.6	103.1
127.5°	118.1	123.9	121.6	112.3	110.0	108.9
130°	122.8	126.2	125.1	115.8	115.8	115.8
132.5°	125.1	129.7	127.4	120.4	122.8	121.6
135°	126.2	132.0	129.7	126.2	128.6	126.2
137.5°	128.6	133.2	132.0	129.7	134.3	130.9
140°	132.0	134.3	135.5	132.0	139.0	135.5
142.5°	135.5	136.7	139.0	135.5	143.6	140.1
145°	137.8	140.1	142.5	142.5	147.1	142.5
147.5°	137.8	141.3	141.3	144.8	151.7	145.9
150°	141.3	139.0	145.9	149.4	154.0	149.4
152.5°	145.9	144.8	150.6	154.0	156.4	151.7
155°	147.1	148.2	151.7	157.5	158.7	154.0
157.5°	151.7	150.6	156.4	161.0	161.0	156.4
160°	155.2	155.2	161.0	163.3	162.1	157.5
162.5°	158.7	158.7	164.5	164.5	163.3	159.8
165°	161.0	161.0	166.8	165.6	163.3	161.0
167.5°	162.1	163.3	167.9	166.8	163.3	161.0
170°	163.3	163.3	167.9	165.6	163.3	162.1
172.5°	163.3	162.1	166.8	164.5	162.1	162.1
175°	162.1	159.8	164.5	162.1	162.1	163.3
177.5°	161.0	157.5	161.0	161.0	162.1	163.3
180°	161.0	161.0	161.0	161.0	161.0	161.0

(END OF REPORT)