

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: P192495

Luminaire Tested: **4WSL-LD2-40-UPL15-UNV-L840-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192495
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-L840-CD1-U
Description: 4FT Linear Wavestream System, 15% Uplight, L840
Light Source: (238) 4000K CCT, 80 CRI LEDS
EL236N0119D840
Ballast/Driver: OSRAM
OT50W

Summary

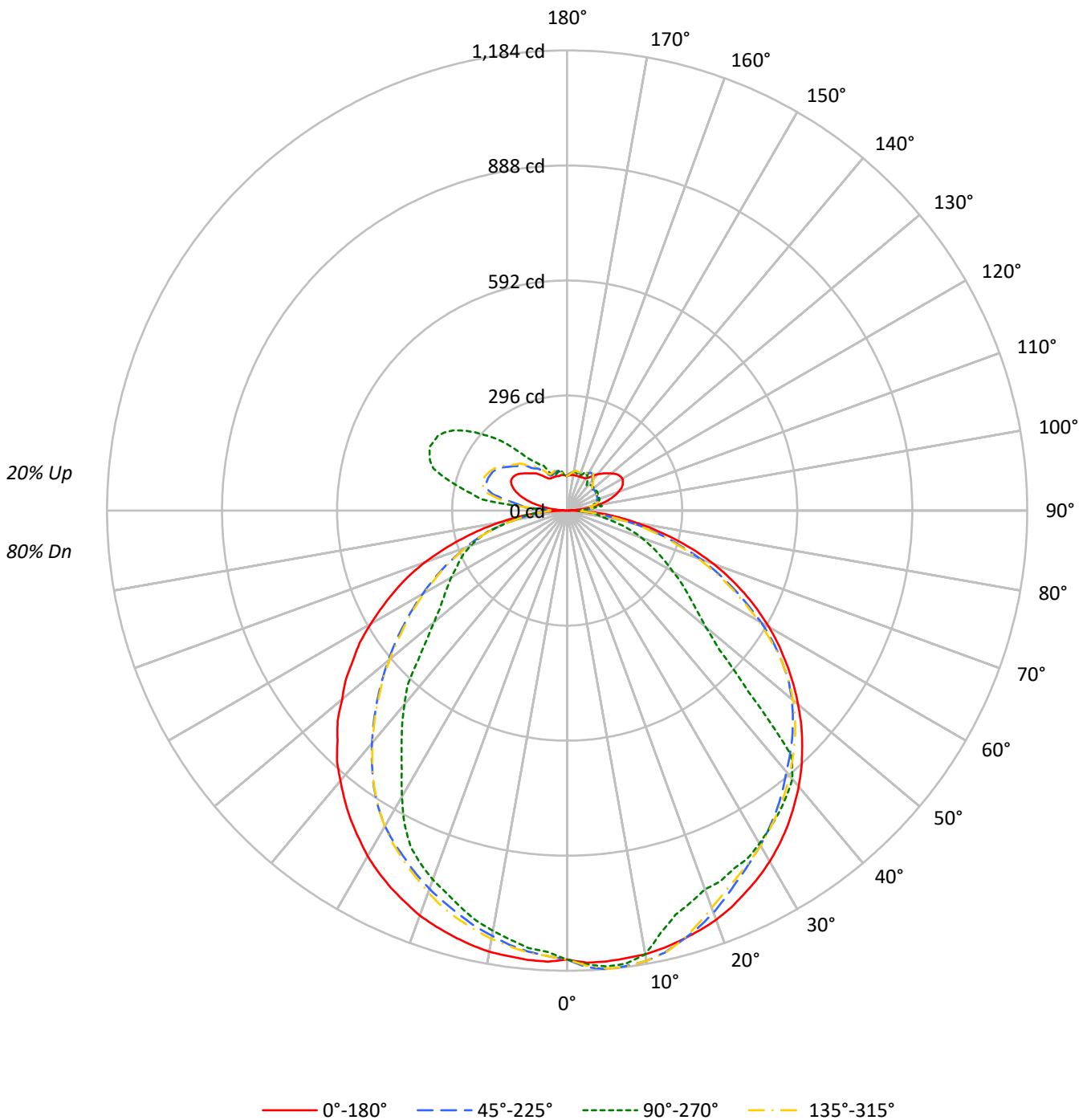
Lumens per Lamp: N/A
Luminaire Lumens: 4088.0 lumens
Efficiency: N/A
Efficacy: 116.5 lumens/watt
Spacing Criteria (0/90/45): 1.32 / 1.19 / 1.35
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

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





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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°	6544	6544	6544	6544
5°	6622	6697	6599	6426
10°	6668	6668	6630	6317
15°	6705	6316	6650	6199
20°	6756	6252	6684	6093
25°	6781	6350	6698	5960
30°	6819	6472	6715	5561
35°	6842	6567	6714	5136
40°	6856	6669	6708	4816
45°	6853	5302	6694	4335
50°	6838	4091	6662	3939
55°	6811	3772	6641	3824
60°	6791	3561	6611	3907
65°	6737	3449	6560	4089
70°	6634	3361	6458	4371
75°	6328	3194	6124	4645
80°	5928	2900	5755	4629
85°	5948	3796	5519	5519



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.9	2.7
10°-20°	312.0	7.6
20°-30°	471.4	11.5
30°-40°	567.4	13.9
40°-50°	577.0	14.1
50°-60°	502.2	12.3
60°-70°	391.8	9.6
70°-80°	242.2	5.9
80°-90°	85.2	2.1
90°-100°	80.2	2.0
100°-110°	155.3	3.8
110°-120°	170.0	4.2
120°-130°	149.0	3.6
130°-140°	111.6	2.7
140°-150°	76.4	1.9
150°-160°	48.7	1.2
160°-170°	28.4	0.7
170°-180°	9.2	0.2
0°-30°	893.3	21.9
0°-40°	1460.7	35.7
0°-60°	2539.9	62.1
0°-90°	3259.1	79.7
90°-120°	405.5	9.9
90°-150°	742.6	18.2
90°-180°	829.0	20.3
0°-180°	4088.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1155	1155	1155	1155	1155	
5°	1164	1178	1160	1130	1164	111
15°	1143	1077	1134	1057	1143	323
25°	1085	1016	1072	954	1085	501
35°	989	950	971	743	989	619
45°	855	662	836	541	855	660
55°	690	382	672	387	690	617
65°	503	257	489	305	503	497
75°	289	146	280	212	289	306
85°	92	58	85	85	92	91
90°	1	37	1	58	1	7
95°	36	61	28	122	36	37
105°	114	76	110	325	114	119
115°	158	86	158	390	158	155
125°	160	90	160	359	160	143
135°	135	90	135	263	135	105
145°	106	90	109	156	106	68
155°	94	109	93	107	94	43
165°	93	98	92	100	93	26
175°	92	96	92	93	92	9
180°	89	89	89	89	89	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1
2.5°	1164.4	1159.1	1176.3	1177.7	1168.4	1172.4	1172.4	1157.8	1161.7	1144.5	1147.2
5°	1164.4	1165.7	1184.3	1183.0	1177.7	1179.0	1183.0	1164.4	1160.4	1136.5	1139.2
7.5°	1161.7	1168.4	1181.6	1180.3	1175.0	1176.3	1183.0	1167.0	1156.4	1128.6	1127.3
10°	1159.1	1165.7	1176.3	1169.7	1159.1	1163.1	1176.3	1165.7	1152.5	1119.3	1111.3
12.5°	1152.5	1159.1	1164.4	1131.2	1112.7	1128.6	1165.7	1159.1	1144.5	1106.0	1095.4
15°	1143.2	1151.1	1144.5	1098.1	1076.9	1091.5	1144.5	1149.8	1133.9	1088.8	1075.5
17.5°	1132.6	1141.9	1124.6	1072.9	1057.0	1063.6	1116.7	1137.9	1122.0	1071.6	1055.6
20°	1120.6	1131.2	1100.7	1046.4	1037.1	1042.4	1087.5	1124.6	1108.7	1053.0	1035.8
22.5°	1104.7	1116.7	1072.9	1027.8	1031.8	1027.8	1061.0	1107.4	1090.1	1033.1	1013.2
25°	1084.8	1098.1	1045.0	1011.9	1015.9	1014.5	1038.4	1084.8	1071.6	1009.2	988.0
27.5°	1064.9	1078.2	1019.8	1001.3	1007.9	999.9	1017.2	1061.0	1050.3	984.0	964.1
30°	1042.4	1057.0	994.6	982.7	989.3	984.0	996.0	1037.1	1026.5	957.5	937.6
32.5°	1017.2	1031.8	968.1	960.2	969.4	962.8	970.8	1010.6	998.6	928.3	904.5
35°	989.3	1003.9	940.3	940.3	949.6	941.6	945.6	984.0	970.8	899.2	867.3
37.5°	958.8	974.8	909.8	916.4	927.0	919.1	919.1	956.2	940.3	867.3	824.9
40°	927.0	944.2	877.9	892.5	901.8	892.5	889.9	927.0	907.1	835.5	781.1
42.5°	892.5	911.1	848.8	866.0	854.1	866.0	859.4	896.5	876.6	801.0	736.0
45°	855.4	879.3	819.6	809.0	661.8	801.0	828.9	864.7	835.5	767.9	690.9
47.5°	816.9	842.1	787.8	710.8	531.8	702.9	795.7	830.2	801.0	732.1	645.9
50°	775.8	805.0	754.6	626.0	464.2	618.0	758.6	794.4	755.9	693.6	600.8
52.5°	733.4	765.2	717.5	553.0	419.1	545.1	718.8	755.9	718.8	652.5	557.0
55°	689.6	722.8	673.7	485.4	381.9	484.1	672.4	714.8	672.4	611.4	513.2
57.5°	645.9	683.0	627.3	436.3	350.1	429.7	620.7	672.4	632.6	568.9	470.8
60°	599.4	633.9	576.9	383.3	314.3	381.9	568.9	628.6	583.5	525.2	429.7
62.5°	551.7	590.2	522.5	336.9	285.1	335.5	513.2	579.5	535.8	480.1	389.9
65°	502.6	539.8	470.8	299.7	257.3	297.1	461.5	529.2	489.4	435.0	352.8
67.5°	452.2	486.7	419.1	263.9	229.4	261.3	408.5	476.1	441.6	388.6	313.0
70°	400.5	432.3	366.0	229.4	202.9	228.1	356.7	421.7	389.9	340.8	277.2
72.5°	346.1	375.3	310.3	196.3	175.1	195.0	302.4	366.0	332.9	290.4	245.3
75°	289.1	317.0	258.6	163.1	145.9	161.8	250.7	306.4	279.8	244.0	208.2
77.5°	234.7	262.6	205.6	126.0	111.4	123.3	196.3	250.7	228.1	197.6	169.8
80°	181.7	204.2	151.2	94.2	88.9	94.2	147.2	192.3	176.4	155.2	132.6
82.5°	133.9	147.2	102.1	76.9	76.9	76.9	99.5	136.6	130.0	115.4	100.8
85°	91.5	91.5	69.0	58.4	58.4	58.4	67.6	80.9	84.9	76.9	76.9
87.5°	38.5	39.8	35.8	31.8	30.5	31.8	34.5	33.2	33.2	37.1	46.4
90°	1.3	17.2	29.2	35.8	37.1	34.5	26.5	15.9	1.3	22.5	41.1
92.5°	9.3	37.1	34.5	45.1	46.4	42.4	35.8	29.2	5.3	41.1	43.8
95°	35.8	43.8	67.6	69.0	61.0	58.4	66.3	41.1	27.9	55.7	111.4
97.5°	57.0	66.3	61.0	79.6	90.2	79.6	63.7	63.7	53.0	86.2	130.0
100°	78.2	70.3	62.3	69.0	79.6	70.3	59.7	70.3	74.3	100.8	159.1
102.5°	98.1	78.2	78.2	67.6	69.0	66.3	75.6	76.9	92.8	114.1	196.3
105°	114.1	80.9	82.2	76.9	75.6	76.9	82.2	82.2	110.1	126.0	213.5
107.5°	128.6	83.6	80.9	84.9	86.2	84.9	80.9	83.6	126.0	133.9	217.5
110°	140.6	84.9	82.2	84.9	88.9	84.9	82.2	86.2	139.3	141.9	220.1



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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°	151.2	86.2	84.9	83.6	87.5	83.6	84.9	88.9	149.9	145.9	220.1
115°	157.8	87.5	84.9	84.9	86.2	84.9	86.2	90.2	157.8	147.2	217.5
117.5°	161.8	90.2	86.2	87.5	88.9	87.5	86.2	92.8	163.1	152.5	216.2
120°	164.4	99.5	86.2	88.9	90.2	88.9	86.2	100.8	164.4	155.2	210.9
122.5°	163.1	103.4	87.5	88.9	91.5	88.9	87.5	104.8	163.1	153.8	204.2
125°	160.5	107.4	87.5	87.5	90.2	88.9	88.9	107.4	160.5	151.2	195.0
127.5°	155.2	116.7	87.5	88.9	88.9	88.9	88.9	115.4	155.2	152.5	185.7
130°	148.5	123.3	84.9	90.2	88.9	91.5	87.5	123.3	148.5	148.5	177.7
132.5°	141.9	126.0	84.9	90.2	90.2	91.5	86.2	126.0	141.9	143.2	169.8
135°	135.3	128.6	90.2	88.9	90.2	90.2	91.5	128.6	135.3	137.9	164.4
137.5°	128.6	130.0	96.8	84.9	88.9	86.2	99.5	130.0	130.0	130.0	156.5
140°	122.0	128.6	102.1	82.2	83.6	84.9	104.8	130.0	124.7	126.0	143.2
142.5°	114.1	124.7	106.1	88.9	82.2	91.5	108.7	128.6	116.7	122.0	136.6
145°	106.1	120.7	114.1	98.1	90.2	102.1	118.0	124.7	108.7	119.4	132.6
147.5°	99.5	114.1	115.4	103.4	99.5	107.4	119.4	119.4	100.8	114.1	123.3
150°	95.5	107.4	111.4	107.4	103.4	112.7	116.7	110.1	95.5	110.1	115.4
152.5°	94.2	102.1	102.1	112.7	111.4	118.0	107.4	104.8	92.8	106.1	104.8
155°	94.2	100.8	98.1	103.4	108.7	108.7	102.1	102.1	92.8	106.1	99.5
157.5°	92.8	102.1	98.1	96.8	99.5	102.1	102.1	103.4	92.8	103.4	99.5
160°	92.8	103.4	99.5	95.5	96.8	100.8	103.4	103.4	92.8	103.4	100.8
162.5°	92.8	100.8	100.8	96.8	96.8	102.1	103.4	102.1	92.8	100.8	103.4
165°	92.8	100.8	102.1	99.5	98.1	104.8	103.4	99.5	91.5	99.5	104.8
167.5°	92.8	98.1	103.4	100.8	100.8	104.8	104.8	98.1	91.5	95.5	104.8
170°	92.8	96.8	102.1	100.8	102.1	106.1	102.1	96.8	92.8	94.2	100.8
172.5°	92.8	94.2	99.5	100.8	100.8	103.4	99.5	94.2	92.8	91.5	96.8
175°	91.5	94.2	96.8	96.8	95.5	99.5	95.5	92.8	91.5	90.2	92.8
177.5°	90.2	91.5	94.2	94.2	91.5	94.2	91.5	90.2	90.2	88.9	91.5
180°	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1155.1	1155.1	1155.1	1155.1	1155.1	1155.1
2.5°	1145.8	1136.5	1139.2	1147.2	1145.8	1164.4
5°	1133.9	1129.9	1129.9	1141.9	1140.5	1164.4
7.5°	1120.6	1114.0	1118.0	1131.2	1135.2	1161.7
10°	1103.4	1098.1	1099.4	1119.3	1125.9	1159.1
12.5°	1086.2	1080.8	1084.8	1103.4	1112.7	1152.5
15°	1066.3	1057.0	1067.6	1087.5	1099.4	1143.2
17.5°	1042.4	1031.8	1042.4	1068.9	1083.5	1132.6
20°	1021.2	1010.6	1017.2	1045.0	1064.9	1120.6
22.5°	997.3	984.0	989.3	1019.8	1045.0	1104.7
25°	970.8	953.5	961.5	994.6	1022.5	1084.8
27.5°	936.3	907.1	927.0	968.1	994.6	1064.9
30°	888.5	850.1	881.9	938.9	969.4	1042.4
32.5°	832.8	791.7	826.2	903.1	940.3	1017.2
35°	778.5	742.7	774.5	866.0	911.1	989.3
37.5°	730.7	697.6	726.8	823.6	879.3	958.8
40°	681.7	651.2	680.3	778.5	847.4	927.0
42.5°	636.6	607.4	635.2	733.4	813.0	892.5
45°	588.8	541.1	586.2	687.0	775.8	855.4
47.5°	538.4	488.0	534.5	641.9	738.7	816.9
50°	492.0	446.9	489.4	595.5	698.9	775.8
52.5°	450.9	412.4	449.6	549.0	657.8	733.4
55°	412.4	387.2	413.8	506.6	619.3	689.6
57.5°	381.9	364.7	383.3	465.5	576.9	645.9
60°	355.4	344.8	356.7	424.4	531.8	599.4
62.5°	326.2	322.3	326.2	384.6	488.0	551.7
65°	301.0	305.0	301.0	348.8	441.6	502.6
67.5°	277.2	286.5	278.5	310.3	395.2	452.2
70°	250.7	263.9	252.0	275.8	347.5	400.5
72.5°	222.8	238.7	222.8	242.7	297.1	346.1
75°	193.6	212.2	195.0	206.9	249.3	289.1
77.5°	161.8	173.7	164.4	168.4	202.9	234.7
80°	128.6	141.9	130.0	132.6	160.5	181.7
82.5°	107.4	116.7	108.7	100.8	119.4	133.9
85°	79.6	84.9	82.2	78.2	82.2	91.5
87.5°	49.1	51.7	49.1	49.1	42.4	38.5
90°	54.4	58.4	54.4	42.4	23.9	1.3
92.5°	55.7	61.0	55.7	46.4	45.1	9.3
95°	124.7	122.0	132.6	120.7	69.0	35.8
97.5°	193.6	221.5	200.3	144.6	92.8	57.0
100°	222.8	249.3	232.1	180.4	106.1	78.2
102.5°	257.3	286.5	267.9	210.9	119.4	98.1
105°	299.7	324.9	309.0	222.8	131.3	114.1
107.5°	322.3	360.7	328.9	228.1	139.3	128.6
110°	334.2	375.3	344.8	229.4	145.9	140.6



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	343.5	383.3	351.4	229.4	148.5	151.2
115°	343.5	389.9	351.4	225.5	152.5	157.8
117.5°	343.5	385.9	351.4	221.5	157.8	161.8
120°	331.5	384.6	342.2	216.2	159.1	164.4
122.5°	322.3	374.0	328.9	209.5	159.1	163.1
125°	305.0	359.4	313.0	201.6	156.5	160.5
127.5°	286.5	338.2	293.1	192.3	157.8	155.2
130°	269.2	314.3	273.2	183.0	152.5	148.5
132.5°	246.7	287.8	250.7	176.4	147.2	141.9
135°	225.5	262.6	230.8	171.1	140.6	135.3
137.5°	202.9	236.1	208.2	160.5	133.9	128.6
140°	176.4	202.9	181.7	148.5	130.0	122.0
142.5°	159.1	173.7	164.4	143.2	124.7	114.1
145°	148.5	156.5	152.5	137.9	122.0	106.1
147.5°	137.9	145.9	141.9	127.3	115.4	99.5
150°	133.9	133.9	139.3	118.0	111.4	95.5
152.5°	119.4	130.0	124.7	107.4	108.7	94.2
155°	102.1	107.4	107.4	103.4	108.7	94.2
157.5°	95.5	99.5	100.8	103.4	106.1	92.8
160°	95.5	96.8	100.8	104.8	104.8	92.8
162.5°	98.1	96.8	103.4	107.4	102.1	92.8
165°	100.8	99.5	106.1	108.7	99.5	92.8
167.5°	103.4	103.4	108.7	107.4	96.8	92.8
170°	103.4	106.1	108.7	103.4	95.5	92.8
172.5°	99.5	100.8	103.4	96.8	91.5	92.8
175°	94.2	92.8	96.8	92.8	91.5	91.5
177.5°	91.5	87.5	91.5	90.2	88.9	90.2
180°	88.9	88.9	88.9	88.9	88.9	88.9

(END OF REPORT)