

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: P192447

Luminaire Tested: **4WSL-LD2-35-UPL8-UNV-L840-CD1-U**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P192447
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-L840-CD1-U
Description: 4FT Linear Wavestream System, 8% Uplight, L840
Light Source: (238) 4000K CCT, 80 CRI LEDS
EL236N0119D840
Ballast/Driver: OSRAM
OT30W

Summary

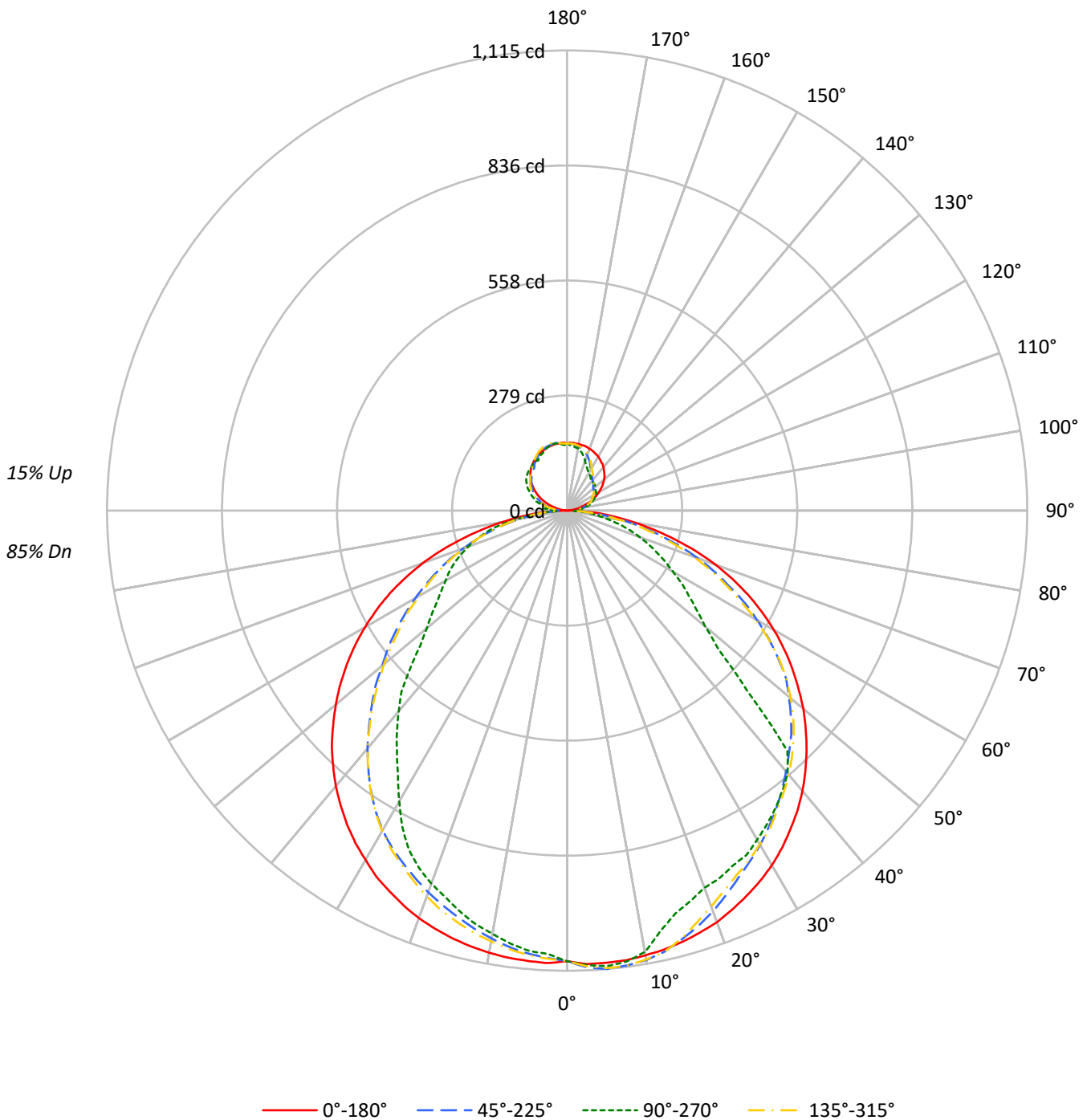
Lumens per Lamp: N/A
Luminaire Lumens: 3621.0 lumens
Efficiency: N/A
Efficacy: 118.3 lumens/watt
Spacing Criteria (0/90/45): 1.34 / 1.19 / 1.36
Luminous Opening: Rectangular (W 0.5' x L: 3.8' x H: 0')
CIE Type: Semi-Direct

Input Watts (W): 30.6
Input Voltage (V): NR
Input Current (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			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°	6185	6185	6185	6185
5°	6255	6301	6228	6088
10°	6293	6246	6260	5991
15°	6341	5930	6293	5896
20°	6398	5863	6335	5799
25°	6437	5933	6363	5670
30°	6491	6025	6392	5322
35°	6523	6087	6426	4971
40°	6560	6146	6448	4694
45°	6574	4944	6462	4289
50°	6583	3843	6449	3915
55°	6569	3556	6442	3798
60°	6556	3350	6410	3853
65°	6487	3212	6346	4043
70°	6311	3097	6157	4221
75°	5910	2916	5730	4452
80°	5377	2669	5148	4231
85°	5239	2886	4713	3796



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.8	2.9
10°-20°	294.7	8.1
20°-30°	446.1	12.3
30°-40°	538.7	14.9
40°-50°	550.0	15.2
50°-60°	480.8	13.3
60°-70°	372.7	10.3
70°-80°	224.1	6.2
80°-90°	69.2	1.9
90°-100°	29.2	0.8
100°-110°	55.8	1.5
110°-120°	75.7	2.1
120°-130°	86.1	2.4
130°-140°	87.3	2.4
140°-150°	80.4	2.2
150°-160°	66.3	1.8
160°-170°	44.6	1.2
170°-180°	15.5	0.4
0°-30°	844.6	23.3
0°-40°	1383.3	38.2
0°-60°	2414.1	66.7
0°-90°	3080.0	85.1
90°-120°	160.7	4.4
90°-150°	414.5	11.4
90°-180°	541.0	14.9
0°-180°	3621.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1092	1092	1092	1092	1092	
5°	1100	1108	1095	1071	1100	105
15°	1081	1011	1073	1005	1081	306
25°	1030	949	1018	907	1030	475
35°	943	880	929	719	943	591
45°	820	617	806	535	820	633
55°	665	360	652	384	665	594
65°	484	240	473	302	484	477
75°	270	133	262	203	270	286
85°	81	44	72	58	81	81
90°	1	24	1	28	1	5
95°	7	34	7	54	7	9
105°	37	57	36	72	37	40
115°	72	74	71	98	72	72
125°	104	84	102	120	104	92
135°	127	92	126	133	127	98
145°	144	98	143	141	144	90
155°	156	114	154	150	156	72
165°	162	143	161	162	162	46
175°	165	157	165	161	165	16
180°	162	162	162	162	162	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7
2.5°	1099.9	1094.0	1108.0	1110.4	1102.2	1104.5	1105.7	1092.9	1097.5	1080.0	1084.7
5°	1099.9	1098.7	1115.1	1112.7	1108.0	1109.2	1112.7	1097.5	1095.2	1074.1	1077.7
7.5°	1098.7	1101.0	1111.6	1109.2	1102.2	1105.7	1111.6	1099.9	1092.9	1068.3	1067.1
10°	1094.0	1097.5	1105.7	1098.7	1085.8	1091.7	1104.5	1097.5	1088.2	1059.0	1053.1
12.5°	1089.3	1091.7	1094.0	1064.8	1043.8	1057.8	1094.0	1091.7	1081.2	1048.4	1037.9
15°	1081.2	1084.7	1075.3	1033.2	1011.0	1025.1	1073.0	1082.3	1073.0	1033.2	1020.4
17.5°	1071.8	1075.3	1055.4	1008.7	992.3	999.3	1046.1	1070.6	1062.5	1019.2	1002.9
20°	1061.3	1064.8	1033.2	983.0	972.5	978.3	1020.4	1057.8	1050.8	1002.9	984.2
22.5°	1046.1	1051.9	1007.5	965.4	964.3	964.3	995.8	1042.6	1035.6	983.0	963.1
25°	1029.7	1035.6	981.8	949.1	949.1	949.1	973.6	1022.7	1018.0	961.9	942.1
27.5°	1012.2	1018.0	958.4	937.4	940.9	935.1	954.9	1000.5	1000.5	940.9	919.9
30°	992.3	998.2	935.1	918.7	921.0	918.7	933.9	977.1	977.1	916.4	894.2
32.5°	969.0	974.8	909.3	896.5	901.2	898.8	914.0	953.8	954.9	890.6	863.8
35°	943.2	950.3	882.5	875.4	880.1	876.6	887.1	929.2	929.2	862.6	828.7
37.5°	916.4	923.4	854.4	852.1	856.7	853.2	861.4	903.5	901.2	833.4	791.3
40°	887.1	895.3	825.2	825.2	831.0	828.7	835.7	876.6	871.9	804.2	752.7
42.5°	854.4	864.9	796.0	797.1	790.1	799.5	806.5	848.6	839.2	771.4	710.6
45°	820.5	833.4	767.9	746.9	617.1	738.7	776.1	820.5	806.5	738.7	669.7
47.5°	784.3	800.6	735.2	658.0	496.8	647.5	743.4	785.5	769.1	703.6	630.0
50°	746.9	765.6	701.3	582.1	436.0	570.4	707.1	750.4	731.7	667.4	584.4
52.5°	706.0	727.0	668.6	515.5	395.1	504.9	669.7	716.5	693.1	628.8	547.0
55°	665.1	687.3	624.2	458.2	360.0	448.8	626.5	673.2	652.2	589.1	506.1
57.5°	623.0	645.2	579.7	407.9	329.6	398.6	577.4	633.5	610.1	548.2	465.2
60°	578.6	600.8	531.8	362.3	295.7	355.3	527.1	589.1	565.7	506.1	425.5
62.5°	531.8	554.0	486.2	320.3	267.7	314.4	472.2	545.8	520.1	461.7	384.5
65°	483.9	500.3	432.5	280.5	239.6	275.8	423.1	492.1	473.4	414.9	346.0
67.5°	433.6	450.0	385.7	245.5	212.7	240.8	375.2	444.2	423.1	369.3	307.4
70°	381.0	395.1	336.6	211.6	187.0	208.1	324.9	390.4	371.7	321.4	266.5
72.5°	327.3	340.1	284.0	180.0	160.1	177.7	272.3	336.6	317.9	271.2	229.1
75°	270.0	282.9	234.9	148.4	133.2	146.1	224.4	279.3	261.8	223.2	190.5
77.5°	216.2	231.4	185.8	116.9	106.4	114.5	176.5	225.6	208.1	178.8	153.1
80°	164.8	177.7	137.9	88.8	81.8	87.7	128.6	171.8	157.8	137.9	119.2
82.5°	119.2	126.2	94.7	65.5	61.9	64.3	87.7	121.6	114.5	99.4	87.7
85°	80.6	79.5	58.4	45.6	44.4	45.6	52.6	73.6	72.5	66.6	56.1
87.5°	33.9	31.6	26.9	18.7	16.4	17.5	21.0	28.1	26.9	28.1	26.9
90°	1.2	11.7	18.7	23.4	24.5	23.4	18.7	11.7	1.2	12.9	21.0
92.5°	2.3	15.2	22.2	25.7	28.1	25.7	21.0	15.2	2.3	19.9	21.0
95°	7.0	21.0	25.7	31.6	33.9	31.6	25.7	19.9	7.0	17.5	31.6
97.5°	14.0	26.9	30.4	35.1	36.2	33.9	29.2	26.9	12.9	31.6	32.7
100°	21.0	33.9	39.7	39.7	40.9	39.7	38.6	32.7	19.9	35.1	39.7
102.5°	29.2	38.6	45.6	49.1	49.1	49.1	45.6	38.6	26.9	43.2	54.9
105°	37.4	42.1	50.3	54.9	57.3	54.9	50.3	43.2	36.2	50.3	58.4
107.5°	46.8	45.6	54.9	59.6	61.9	59.6	54.9	46.8	44.4	56.1	65.5
110°	56.1	50.3	59.6	64.3	65.5	64.3	59.6	50.3	53.8	63.1	72.5



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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°	64.3	53.8	64.3	69.0	70.1	69.0	64.3	54.9	61.9	67.8	79.5
115°	72.5	57.3	66.6	72.5	73.6	72.5	66.6	58.4	71.3	73.6	85.3
117.5°	80.6	61.9	69.0	76.0	77.1	76.0	70.1	63.1	79.5	80.6	91.2
120°	88.8	67.8	72.5	78.3	80.6	79.5	72.5	69.0	86.5	86.5	95.8
122.5°	95.8	72.5	76.0	80.6	83.0	80.6	76.0	74.8	94.7	92.3	101.7
125°	104.0	77.1	78.3	83.0	84.2	83.0	79.5	78.3	101.7	97.0	105.2
127.5°	109.9	83.0	80.6	85.3	86.5	85.3	81.8	84.2	108.7	106.4	108.7
130°	116.9	88.8	83.0	87.7	88.8	88.8	83.0	91.2	114.5	113.4	113.4
132.5°	122.7	94.7	85.3	90.0	91.2	91.2	86.5	95.8	120.4	119.2	116.9
135°	127.4	102.9	90.0	90.0	92.3	92.3	91.2	104.0	126.2	125.1	122.7
137.5°	132.1	109.9	93.5	91.2	92.3	92.3	95.8	111.0	130.9	130.9	126.2
140°	136.8	116.9	95.8	93.5	93.5	95.8	99.4	118.1	135.6	135.6	127.4
142.5°	141.4	122.7	99.4	97.0	94.7	99.4	102.9	125.1	139.1	140.3	130.9
145°	143.8	128.6	104.0	100.5	98.2	104.0	108.7	130.9	142.6	144.9	137.9
147.5°	147.3	134.4	109.9	102.9	102.9	106.4	113.4	135.6	146.1	148.4	141.4
150°	150.8	139.1	114.5	106.4	104.0	109.9	118.1	140.3	149.6	151.9	146.1
152.5°	153.1	143.8	121.6	111.0	108.7	115.7	126.2	143.8	151.9	154.3	150.8
155°	155.5	147.3	129.7	115.7	114.5	120.4	133.2	147.3	154.3	156.6	154.3
157.5°	157.8	150.8	135.6	122.7	118.1	127.4	139.1	151.9	156.6	159.0	157.8
160°	159.0	153.1	142.6	129.7	127.4	135.6	144.9	153.1	157.8	161.3	160.1
162.5°	161.3	155.5	147.3	137.9	135.6	142.6	149.6	156.6	160.1	162.5	162.5
165°	162.5	157.8	151.9	144.9	142.6	149.6	153.1	159.0	161.3	162.5	163.6
167.5°	162.5	160.1	155.5	149.6	148.4	154.3	157.8	161.3	162.5	162.5	164.8
170°	163.6	161.3	157.8	154.3	153.1	157.8	159.0	162.5	163.6	162.5	166.0
172.5°	163.6	162.5	160.1	156.6	154.3	160.1	161.3	162.5	163.6	162.5	164.8
175°	164.8	162.5	162.5	160.1	156.6	162.5	162.5	162.5	164.8	162.5	163.6
177.5°	164.8	162.5	162.5	161.3	159.0	162.5	162.5	162.5	164.8	162.5	163.6
180°	162.5	162.5	162.5	162.5	162.5	162.5	162.5	162.5	162.5	162.5	162.5



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1091.7	1091.7	1091.7	1091.7	1091.7	1091.7
2.5°	1083.5	1075.3	1077.7	1087.0	1083.5	1099.9
5°	1075.3	1070.6	1070.6	1081.2	1080.0	1099.9
7.5°	1062.5	1057.8	1060.1	1071.8	1074.1	1098.7
10°	1047.3	1041.4	1043.8	1060.1	1066.0	1094.0
12.5°	1030.9	1026.2	1028.6	1047.3	1055.4	1089.3
15°	1012.2	1005.2	1012.2	1032.1	1042.6	1081.2
17.5°	991.2	981.8	990.0	1015.7	1028.6	1071.8
20°	970.1	961.9	966.6	994.7	1013.4	1061.3
22.5°	949.1	937.4	942.1	971.3	994.7	1046.1
25°	924.5	907.0	916.4	947.9	974.8	1029.7
27.5°	891.8	864.9	884.8	924.5	951.4	1012.2
30°	848.6	813.5	842.7	896.5	926.9	992.3
32.5°	800.6	763.2	796.0	864.9	901.2	969.0
35°	752.7	718.8	748.0	829.9	874.3	943.2
37.5°	707.1	677.9	704.8	792.5	846.2	916.4
40°	663.9	634.7	662.7	751.6	815.8	887.1
42.5°	620.6	593.8	620.6	708.3	784.3	854.4
45°	577.4	535.3	575.1	666.2	750.4	820.5
47.5°	530.6	481.6	527.1	620.6	714.2	784.3
50°	486.2	444.2	483.9	578.6	676.7	746.9
52.5°	447.7	413.8	445.3	535.3	638.2	706.0
55°	411.4	384.5	411.4	493.2	597.3	665.1
57.5°	378.7	361.2	379.9	457.0	555.2	623.0
60°	350.6	340.1	351.8	412.6	513.1	578.6
62.5°	323.8	322.6	324.9	377.5	468.7	531.8
65°	295.7	301.6	295.7	340.1	424.3	483.9
67.5°	267.7	279.3	270.0	302.7	376.4	433.6
70°	241.9	254.8	241.9	264.2	328.4	381.0
72.5°	212.7	229.1	212.7	227.9	278.2	327.3
75°	184.7	203.4	185.8	190.5	230.3	270.0
77.5°	154.3	171.8	157.8	154.3	185.8	216.2
80°	122.7	129.7	122.7	121.6	143.8	164.8
82.5°	85.3	91.2	85.3	88.8	105.2	119.2
85°	56.1	58.4	56.1	57.3	70.1	80.6
87.5°	23.4	23.4	23.4	29.2	31.6	33.9
90°	25.7	28.1	25.7	21.0	12.9	1.2
92.5°	26.9	29.2	26.9	23.4	15.2	2.3
95°	47.9	53.8	45.6	29.2	24.5	7.0
97.5°	38.6	42.1	39.7	33.9	30.4	14.0
100°	45.6	49.1	45.6	47.9	37.4	21.0
102.5°	53.8	56.1	54.9	56.1	45.6	29.2
105°	70.1	72.5	70.1	60.8	52.6	37.4
107.5°	74.8	80.6	76.0	67.8	59.6	46.8
110°	80.6	85.3	81.8	74.8	65.5	56.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	86.5	92.3	88.8	83.0	70.1	64.3
115°	93.5	98.2	95.8	88.8	77.1	72.5
117.5°	100.5	104.0	101.7	93.5	84.2	80.6
120°	106.4	111.0	108.7	99.4	90.0	88.8
122.5°	111.0	115.7	113.4	105.2	95.8	95.8
125°	115.7	120.4	118.1	109.9	100.5	104.0
127.5°	119.2	125.1	122.7	113.4	111.0	109.9
130°	123.9	127.4	126.2	116.9	116.9	116.9
132.5°	126.2	130.9	128.6	121.6	123.9	122.7
135°	127.4	133.2	130.9	127.4	129.7	127.4
137.5°	129.7	134.4	133.2	130.9	135.6	132.1
140°	133.2	135.6	136.8	133.2	140.3	136.8
142.5°	136.8	137.9	140.3	136.8	144.9	141.4
145°	139.1	141.4	143.8	143.8	148.4	143.8
147.5°	139.1	142.6	142.6	146.1	153.1	147.3
150°	142.6	140.3	147.3	150.8	155.5	150.8
152.5°	147.3	146.1	151.9	155.5	157.8	153.1
155°	148.4	149.6	153.1	159.0	160.1	155.5
157.5°	153.1	151.9	157.8	162.5	162.5	157.8
160°	156.6	156.6	162.5	164.8	163.6	159.0
162.5°	160.1	160.1	166.0	166.0	164.8	161.3
165°	162.5	162.5	168.3	167.1	164.8	162.5
167.5°	163.6	164.8	169.5	168.3	164.8	162.5
170°	164.8	164.8	169.5	167.1	164.8	163.6
172.5°	164.8	163.6	168.3	166.0	163.6	163.6
175°	163.6	161.3	166.0	163.6	163.6	164.8
177.5°	162.5	159.0	162.5	162.5	163.6	164.8
180°	162.5	162.5	162.5	162.5	162.5	162.5

(END OF REPORT)