

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: FAIL-SAFE

Report Number: P392524

Luminaire Tested: **MWL-2-28-23-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392524
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1910-565-25 &
Test Lab: INNOVATION CENTER
Issue Date: 12/2/2019
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MWL-2-28-23-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4325.7 lumens
Efficiency: N/A
Efficacy: 77.2 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

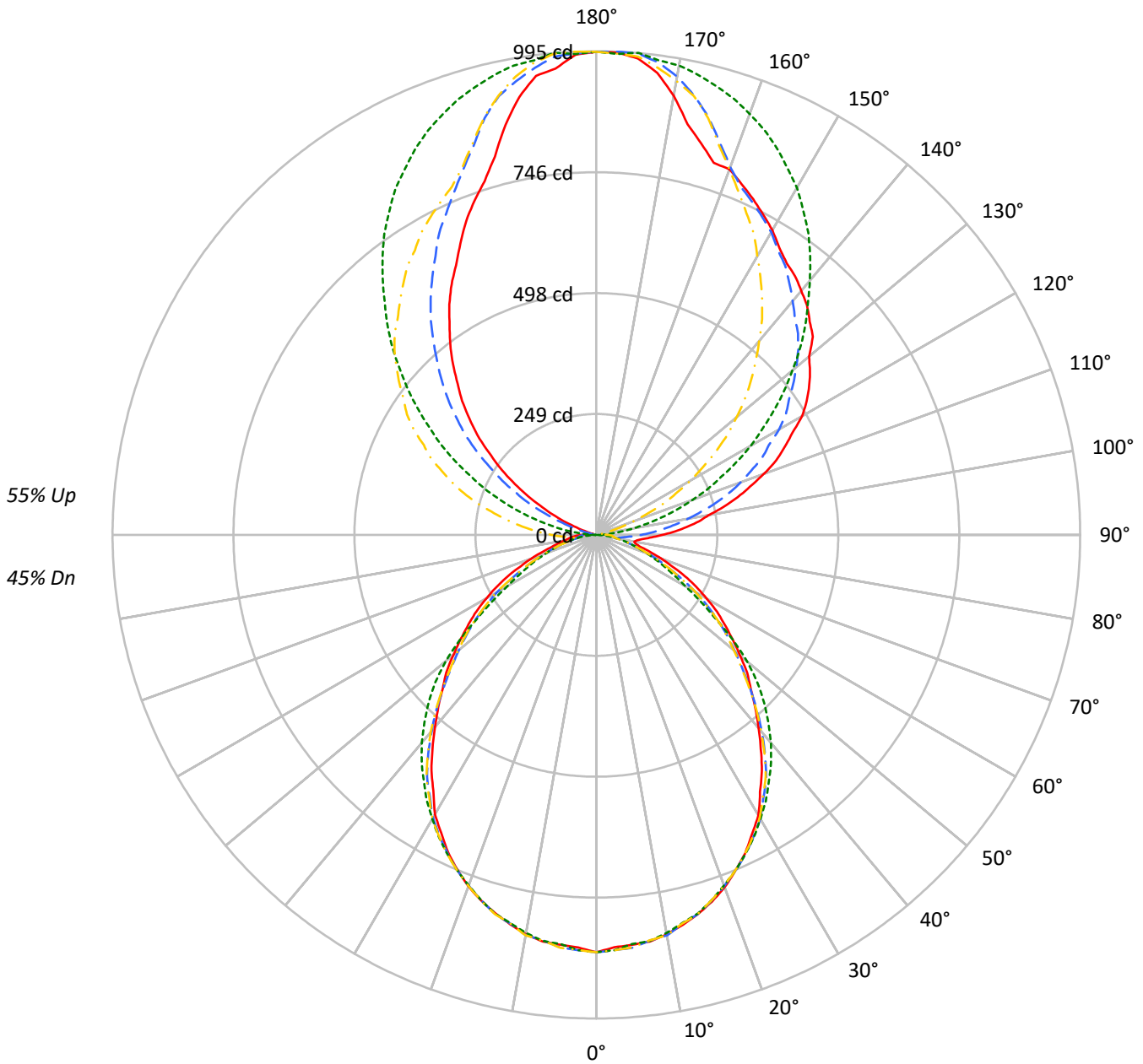
Input Watts (W): 56.055
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P392524

CATALOG NUMBER: MWL-2-28-23-UNV-L935-EDD

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° ···· 90°-270° - · - · 135°-315°



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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	0	
RCR																						
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45				
1	97	93	89	85	89	85	82	79	71	69	67	58	56	55	46	45	44	38				
2	89	81	75	70	81	75	70	65	63	59	56	51	49	46	41	39	38	33				
3	81	72	65	59	74	66	60	55	56	51	47	46	42	40	37	34	32	28				
4	74	64	56	50	68	59	52	47	50	45	41	41	37	34	33	30	28	25				
5	68	57	49	43	62	53	46	41	44	39	35	37	33	30	30	27	25	22				
6	63	51	43	38	58	47	40	35	40	35	31	33	29	26	27	24	22	19				
7	58	46	38	33	53	43	36	31	36	31	27	31	26	23	25	22	20	17				
8	54	42	34	29	50	39	32	28	33	28	24	28	24	21	23	20	18	15				
9	50	38	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	20	24	20	17	20	17	15	13				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	11090	11090	11090	11090
5°	10779	10075	10779	10075
10°	10556	9275	10556	9275
15°	10226	8504	10199	8504
20°	9857	7732	9830	7732
25°	9394	7044	9367	7044
30°	8873	6379	8836	6379
35°	8163	5738	8135	5738
40°	7448	5120	7407	5120
45°	6788	4453	6756	4453
50°	6206	3706	6174	3706
55°	5594	2752	5568	2752
60°	4964	2000	4951	2000
65°	4240	1498	4240	1498
70°	3401	1108	3418	1108
75°	2594	781	2653	781
80°	2694	482	2240	482
85°	4208	206	2205	206



TEST NUMBER: P392524

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	80.7	1.9
10°-20°	227.1	5.3
20°-30°	333.3	7.7
30°-40°	378.1	8.7
40°-50°	352.7	8.2
50°-60°	275.9	6.4
60°-70°	171.2	4.0
70°-80°	83.4	1.9
80°-90°	51.7	1.2
90°-100°	78.6	1.8
100°-110°	153.0	3.5
110°-120°	264.0	6.1
120°-130°	359.1	8.3
130°-140°	409.4	9.5
140°-150°	408.5	9.4
150°-160°	355.7	8.2
160°-170°	250.1	5.8
170°-180°	93.2	2.2
0°-30°	641.1	14.8
0°-40°	1019.2	23.6
0°-60°	1647.8	38.1
0°-90°	1954.1	45.2
90°-120°	495.6	11.5
90°-150°	1672.6	38.7
90°-180°	2372.0	54.8
0°-180°	4325.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	859	859	859	859	859	
5°	846	845	846	845	846	81
15°	807	806	805	806	807	227
25°	723	725	721	725	723	332
35°	593	619	591	619	593	370
45°	449	488	447	488	449	348
55°	322	297	321	297	322	289
65°	201	154	201	154	201	198
75°	92	74	94	74	92	105
85°	96	17	50	17	96	75
90°	135	1	30	1	135	75
95°	186	28	20	28	186	162
105°	301	139	6	139	301	317
115°	427	284	98	284	427	423
125°	534	445	243	445	534	477
135°	621	607	390	607	621	479
145°	682	760	526	760	682	430
155°	762	878	661	878	762	352
165°	833	955	806	955	833	236
175°	984	995	963	995	984	92
180°	994	994	994	994	994	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	858.6	858.6	858.6	858.6	858.6	858.6	858.6	858.6	858.6	858.6	858.6
2.5°	849.0	858.7	855.0	855.0	855.0	854.3	855.0	858.7	849.6	858.7	855.0
5°	846.5	853.7	852.5	851.8	845.0	851.8	851.9	853.7	846.5	853.7	851.9
7.5°	843.8	847.7	841.8	844.3	842.5	843.6	841.2	846.9	843.8	846.9	841.2
10°	834.4	836.1	836.8	832.7	831.8	831.9	836.2	834.6	834.4	834.6	836.2
12.5°	821.7	822.7	818.6	821.1	817.9	821.1	818.6	821.3	820.3	821.3	818.6
15°	807.4	811.0	807.8	805.3	806.3	804.6	807.1	809.6	805.3	809.6	807.1
17.5°	790.8	791.8	788.6	787.9	787.9	787.9	787.9	791.1	788.6	791.1	787.9
20°	771.5	771.6	768.5	767.0	767.2	766.3	767.9	770.2	769.4	770.2	767.9
22.5°	747.4	751.6	747.7	749.5	747.2	748.8	747.0	750.2	746.0	750.2	747.0
25°	723.2	725.7	725.1	727.9	724.7	727.2	723.6	723.6	721.1	723.6	723.6
27.5°	693.2	696.5	700.1	702.7	701.3	702.0	698.6	694.5	691.1	694.5	698.6
30°	666.5	664.8	674.0	675.8	674.6	674.4	671.9	662.7	663.7	662.7	671.9
32.5°	626.5	631.5	639.8	649.2	648.6	647.7	637.7	628.7	623.7	628.7	637.7
35°	593.2	596.5	609.0	619.9	618.7	617.8	607.0	594.5	591.2	594.5	607.0
37.5°	555.7	556.5	569.9	588.2	590.1	586.2	567.8	554.4	553.6	554.4	567.8
40°	518.9	518.1	529.8	550.7	558.4	549.4	527.0	515.2	516.1	515.2	527.0
42.5°	483.9	480.5	488.1	515.7	523.3	514.4	486.1	477.7	481.1	477.7	486.1
45°	449.0	444.7	447.2	472.3	487.5	471.0	444.5	442.7	446.9	442.7	444.5
47.5°	420.6	409.7	407.2	428.3	449.1	427.6	404.4	407.6	418.5	407.6	404.4
50°	385.5	379.7	371.3	386.5	404.2	385.1	368.5	376.9	383.5	376.9	368.5
52.5°	353.0	350.5	338.1	344.8	352.5	343.3	336.0	347.7	350.9	347.7	336.0
55°	322.3	318.1	304.8	302.4	296.7	301.0	302.6	316.0	320.8	316.0	302.6
57.5°	293.9	288.0	269.7	262.3	252.4	260.9	267.6	286.0	292.4	286.0	267.6
60°	261.5	256.5	237.3	219.0	211.5	218.4	235.9	255.1	260.8	255.1	235.9
62.5°	231.5	223.1	199.8	182.3	180.0	181.6	198.4	221.7	230.7	221.7	198.4
65°	200.7	188.2	168.2	151.4	154.1	150.7	167.5	187.5	200.7	187.5	167.5
67.5°	168.2	157.3	139.8	124.1	130.7	124.1	139.1	156.6	168.2	156.6	139.1
70°	141.6	128.2	114.1	102.4	109.9	102.4	114.1	128.9	142.3	128.9	114.1
72.5°	114.9	103.2	91.6	84.0	89.1	83.3	91.6	103.9	116.3	103.9	91.6
75°	92.4	81.5	71.6	65.8	74.1	65.8	72.3	82.2	94.5	82.2	72.3
77.5°	82.1	68.4	54.1	52.4	59.1	52.4	54.8	66.4	79.3	66.4	54.8
80°	79.0	67.4	43.7	39.1	43.2	39.1	42.3	56.3	65.7	56.3	42.3
82.5°	84.2	74.6	45.5	28.2	30.7	28.2	37.0	49.3	57.5	49.3	37.0
85°	96.0	88.9	55.1	22.9	17.3	21.5	34.7	46.2	50.3	46.2	34.7
87.5°	113.6	109.9	71.2	28.4	4.1	18.6	31.2	42.5	41.4	42.5	31.2
90°	135.2	131.5	92.3	38.1	0.7	11.4	22.9	32.5	29.9	32.5	22.9
92.5°	161.9	155.9	114.1	54.0	11.3	5.6	17.9	26.2	24.3	26.2	17.9
95°	186.0	181.7	138.4	73.9	28.0	3.7	12.1	19.0	19.6	19.0	12.1
97.5°	212.6	207.4	163.4	99.1	50.7	9.2	8.4	14.5	16.2	14.5	8.4
100°	234.2	231.0	191.7	129.3	77.3	24.1	5.8	10.6	13.1	10.6	5.8
102.5°	269.1	259.9	220.5	158.1	106.1	44.3	11.4	7.2	8.1	7.2	11.4
105°	301.2	291.3	254.8	188.2	139.1	71.7	28.2	9.2	5.8	9.2	28.2
107.5°	331.4	324.4	285.7	219.0	174.1	103.3	52.0	26.7	16.9	26.7	52.0
110°	366.4	358.0	315.9	249.9	210.6	136.9	79.5	49.3	38.1	49.3	79.5



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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°	400.1	393.7	344.0	282.3	248.5	173.4	113.0	77.3	66.8	77.3	113.0
115°	426.9	422.6	376.2	312.5	283.6	214.9	150.3	110.3	98.5	110.3	150.3
117.5°	454.3	453.6	400.1	343.3	325.7	252.0	184.7	144.1	130.7	144.1	184.7
120°	488.7	483.1	434.0	375.0	366.6	292.2	223.4	182.0	168.6	182.0	223.4
122.5°	512.6	509.0	462.0	404.4	404.4	332.2	259.9	218.5	204.4	218.5	259.9
125°	534.3	532.9	483.1	434.0	445.2	369.3	300.5	258.5	243.1	258.5	300.5
127.5°	553.9	556.0	510.4	466.2	486.6	407.3	340.6	294.3	278.1	294.3	340.6
130°	570.8	577.8	536.4	495.6	525.9	448.7	376.3	330.1	319.5	330.1	376.3
132.5°	603.8	599.5	563.0	525.9	568.0	486.6	414.3	365.9	353.9	365.9	414.3
135°	620.6	622.0	586.2	551.8	607.2	524.5	450.0	402.4	390.5	402.4	450.0
137.5°	641.0	636.7	604.4	583.4	643.7	560.9	485.1	440.9	422.0	440.9	485.1
140°	655.6	654.9	628.3	611.5	683.0	596.7	520.9	476.1	458.5	476.1	520.9
142.5°	671.1	675.3	652.1	642.3	722.3	634.6	559.5	510.4	493.6	510.4	559.5
145°	682.4	691.6	676.9	680.9	759.5	676.8	594.0	544.2	525.9	544.2	594.0
147.5°	700.1	712.0	694.4	709.1	791.8	714.7	627.8	578.6	562.5	578.6	627.8
150°	723.9	729.5	719.0	746.1	824.8	755.3	662.1	611.5	595.5	611.5	662.1
152.5°	742.9	749.9	738.0	787.6	850.7	793.3	700.1	643.9	624.9	643.9	700.1
155°	762.5	765.3	756.8	827.6	878.1	830.4	730.2	679.7	661.4	679.7	730.2
157.5°	780.8	786.3	775.7	857.7	902.0	862.6	763.7	715.4	699.3	715.4	763.7
160°	800.3	800.3	805.1	892.8	921.6	890.7	800.3	754.8	732.3	754.8	800.3
162.5°	802.4	815.8	845.1	917.4	940.6	915.3	839.5	782.8	763.2	782.8	839.5
165°	833.3	844.4	890.0	939.2	955.3	937.0	887.9	828.3	805.9	828.3	887.9
167.5°	865.6	890.0	926.5	963.7	969.3	957.4	925.1	883.7	863.5	883.7	925.1
170°	917.4	939.2	957.4	972.8	980.6	973.5	948.2	928.0	914.6	928.0	948.2
172.5°	958.8	972.8	979.8	989.7	984.7	982.0	969.3	959.5	952.5	959.5	969.3
175°	983.9	987.6	993.9	991.3	995.4	987.7	987.6	992.5	962.9	992.5	987.6
177.5°	993.1	998.8	995.3	989.8	990.5	989.1	991.1	993.9	988.8	993.9	991.1
180°	993.9	993.9	993.9	993.9	993.9	993.9	993.9	993.9	993.9	993.9	993.9



TEST NUMBER: P392524

CATALOG NUMBER: MWL-2-28-23-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	858.6	858.6	858.6	858.6	858.6	858.6
2.5°	854.3	855.0	855.0	855.0	858.7	849.0
5°	851.8	845.0	851.8	852.5	853.7	846.5
7.5°	843.6	842.5	844.3	841.8	847.7	843.8
10°	831.9	831.8	832.7	836.8	836.1	834.4
12.5°	821.1	817.9	821.1	818.6	822.7	821.7
15°	804.6	806.3	805.3	807.8	811.0	807.4
17.5°	787.9	787.9	787.9	788.6	791.8	790.8
20°	766.3	767.2	767.0	768.5	771.6	771.5
22.5°	748.8	747.2	749.5	747.7	751.6	747.4
25°	727.2	724.7	727.9	725.1	725.7	723.2
27.5°	702.0	701.3	702.7	700.1	696.5	693.2
30°	674.4	674.6	675.8	674.0	664.8	666.5
32.5°	647.7	648.6	649.2	639.8	631.5	626.5
35°	617.8	618.7	619.9	609.0	596.5	593.2
37.5°	586.2	590.1	588.2	569.9	556.5	555.7
40°	549.4	558.4	550.7	529.8	518.1	518.9
42.5°	514.4	523.3	515.7	488.1	480.5	483.9
45°	471.0	487.5	472.3	447.2	444.7	449.0
47.5°	427.6	449.1	428.3	407.2	409.7	420.6
50°	385.1	404.2	386.5	371.3	379.7	385.5
52.5°	343.3	352.5	344.8	338.1	350.5	353.0
55°	301.0	296.7	302.4	304.8	318.1	322.3
57.5°	260.9	252.4	262.3	269.7	288.0	293.9
60°	218.4	211.5	219.0	237.3	256.5	261.5
62.5°	181.6	180.0	182.3	199.8	223.1	231.5
65°	150.7	154.1	151.4	168.2	188.2	200.7
67.5°	124.1	130.7	124.1	139.8	157.3	168.2
70°	102.4	109.9	102.4	114.1	128.2	141.6
72.5°	83.3	89.1	84.0	91.6	103.2	114.9
75°	65.8	74.1	65.8	71.6	81.5	92.4
77.5°	52.4	59.1	52.4	54.1	68.4	82.1
80°	39.1	43.2	39.1	43.7	67.4	79.0
82.5°	28.2	30.7	28.2	45.5	74.6	84.2
85°	21.5	17.3	22.9	55.1	88.9	96.0
87.5°	18.6	4.1	28.4	71.2	109.9	113.6
90°	11.4	0.7	38.1	92.3	131.5	135.2
92.5°	5.6	11.3	54.0	114.1	155.9	161.9
95°	3.7	28.0	73.9	138.4	181.7	186.0
97.5°	9.2	50.7	99.1	163.4	207.4	212.6
100°	24.1	77.3	129.3	191.7	231.0	234.2
102.5°	44.3	106.1	158.1	220.5	259.9	269.1
105°	71.7	139.1	188.2	254.8	291.3	301.2
107.5°	103.3	174.1	219.0	285.7	324.4	331.4
110°	136.9	210.6	249.9	315.9	358.0	366.4



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	173.4	248.5	282.3	344.0	393.7	400.1
115°	214.9	283.6	312.5	376.2	422.6	426.9
117.5°	252.0	325.7	343.3	400.1	453.6	454.3
120°	292.2	366.6	375.0	434.0	483.1	488.7
122.5°	332.2	404.4	404.4	462.0	509.0	512.6
125°	369.3	445.2	434.0	483.1	532.9	534.3
127.5°	407.3	486.6	466.2	510.4	556.0	553.9
130°	448.7	525.9	495.6	536.4	577.8	570.8
132.5°	486.6	568.0	525.9	563.0	599.5	603.8
135°	524.5	607.2	551.8	586.2	622.0	620.6
137.5°	560.9	643.7	583.4	604.4	636.7	641.0
140°	596.7	683.0	611.5	628.3	654.9	655.6
142.5°	634.6	722.3	642.3	652.1	675.3	671.1
145°	676.8	759.5	680.9	676.9	691.6	682.4
147.5°	714.7	791.8	709.1	694.4	712.0	700.1
150°	755.3	824.8	746.1	719.0	729.5	723.9
152.5°	793.3	850.7	787.6	738.0	749.9	742.9
155°	830.4	878.1	827.6	756.8	765.3	762.5
157.5°	862.6	902.0	857.7	775.7	786.3	780.8
160°	890.7	921.6	892.8	805.1	800.3	800.3
162.5°	915.3	940.6	917.4	845.1	815.8	802.4
165°	937.0	955.3	939.2	890.0	844.4	833.3
167.5°	957.4	969.3	963.7	926.5	890.0	865.6
170°	973.5	980.6	972.8	957.4	939.2	917.4
172.5°	982.0	984.7	989.7	979.8	972.8	958.8
175°	987.7	995.4	991.3	993.9	987.6	983.9
177.5°	989.1	990.5	989.8	995.3	998.8	993.1
180°	993.9	993.9	993.9	993.9	993.9	993.9

(END OF REPORT)