

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: P392507

Luminaire Tested: **MWL-2-22-17-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392507  
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-2-22-17-UNV-L840-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

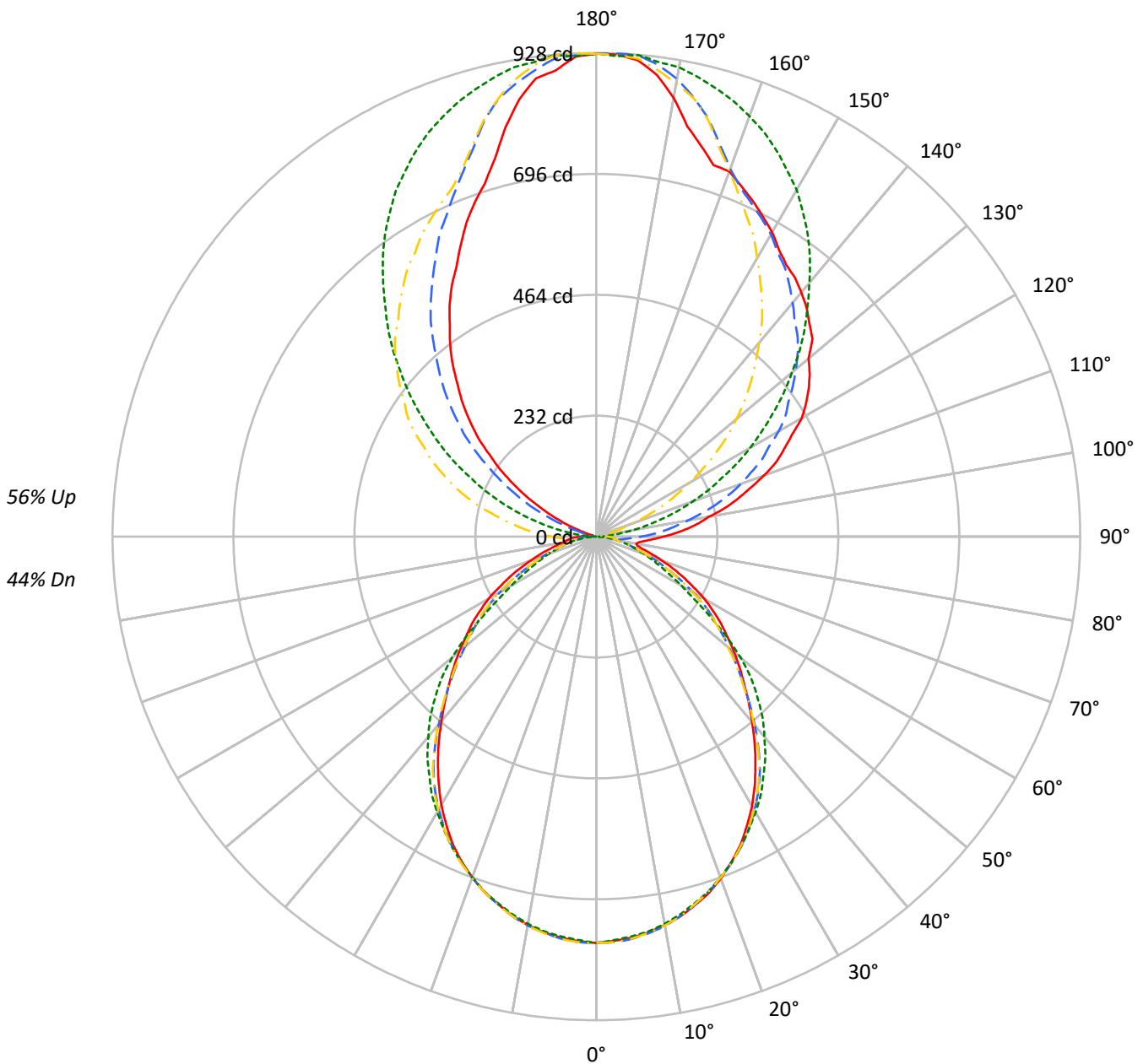
Lumens per Lamp: N/A  
Luminaire Lumens: 3979.2 lumens  
Efficiency: N/A  
Efficacy: 104.2 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 38.2  
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



— 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	80	80	80	65	65	65	51	51	51	44				
1	97	92	89	85	88	85	82	79	71	68	66	57	56	54	45	44	43	38				
2	88	81	75	70	81	75	69	65	62	59	55	51	48	46	40	39	37	32				
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28				
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	32	30	28	24				
5	68	57	49	43	62	52	45	40	44	39	35	37	33	30	29	27	24	21				
6	63	51	43	37	57	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	30	26	23	25	22	19	17				
8	54	42	34	29	49	39	32	27	33	28	24	28	24	21	23	20	17	15				
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	19	16	14	12				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	10070	10070	10070	10070
5°	9838	9183	9838	9183
10°	9576	8414	9576	8414
15°	9270	7681	9244	7681
20°	8917	7010	8891	7010
25°	8485	6382	8460	6382
30°	7951	5774	7916	5774
35°	7315	5181	7288	5181
40°	6668	4596	6631	4596
45°	6061	3994	6032	3994
50°	5552	3306	5522	3306
55°	5073	2448	5051	2448
60°	4548	1778	4537	1778
65°	3866	1315	3866	1315
70°	3178	981	3194	981
75°	2563	693	2620	693
80°	2649	454	2223	454
85°	4103	199	2240	199



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	73.3	1.8
10°-20°	205.9	5.2
20°-30°	301.1	7.6
30°-40°	339.9	8.5
40°-50°	315.6	7.9
50°-60°	248.0	6.2
60°-70°	156.8	3.9
70°-80°	78.5	2.0
80°-90°	49.7	1.2
90°-100°	74.4	1.9
100°-110°	142.8	3.6
110°-120°	246.1	6.2
120°-130°	334.1	8.4
130°-140°	381.2	9.6
140°-150°	380.6	9.6
150°-160°	331.4	8.3
160°-170°	233.1	5.9
170°-180°	86.8	2.2
0°-30°	580.3	14.6
0°-40°	920.2	23.1
0°-60°	1483.8	37.3
0°-90°	1768.7	44.4
90°-120°	463.3	11.6
90°-150°	1559.2	39.2
90°-180°	2210.0	55.5
0°-180°	3979.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	780	780	780	780	780	
5°	773	770	773	770	773	73
15°	732	728	730	728	732	206
25°	653	657	651	657	653	300
35°	532	559	530	559	532	332
45°	401	437	399	437	401	311
55°	292	264	291	264	292	261
65°	183	135	183	135	183	182
75°	91	66	93	66	91	102
85°	94	17	51	17	94	73
90°	129	1	31	1	129	71
95°	175	26	20	26	175	152
105°	281	130	6	130	281	297
115°	397	264	91	264	397	394
125°	497	414	226	414	497	444
135°	578	565	363	565	578	446
145°	636	707	490	707	636	401
155°	710	818	616	818	710	328
165°	776	890	751	890	776	220
175°	917	927	898	927	917	85
180°	927	927	927	927	927	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6	779.6
2.5°	776.6	777.9	779.2	776.9	774.9	776.2	779.2	777.9	777.3	777.9	779.2
5°	772.6	773.9	775.2	772.2	770.2	772.2	774.6	773.9	772.6	773.9	774.6
7.5°	766.3	767.6	767.6	766.2	764.2	765.6	766.9	766.9	766.3	766.9	766.9
10°	756.9	758.6	758.6	756.6	754.6	755.9	757.9	757.3	756.9	757.3	757.9
12.5°	746.2	746.6	745.9	743.9	742.3	743.9	745.9	745.3	744.9	745.3	745.9
15°	731.9	731.6	730.9	729.9	728.3	729.3	730.3	730.3	729.9	730.3	730.3
17.5°	716.9	715.6	714.9	715.3	714.3	715.3	714.3	714.9	714.9	714.9	714.3
20°	697.9	698.2	696.9	697.3	695.6	696.6	696.3	696.9	695.9	696.9	696.3
22.5°	676.2	677.2	677.9	677.3	676.6	676.6	677.3	675.9	674.9	675.9	677.3
25°	653.2	654.2	656.6	656.3	656.6	655.6	655.3	652.3	651.3	652.3	655.3
27.5°	625.2	629.2	632.6	633.9	633.6	633.3	631.3	627.3	623.3	627.3	631.3
30°	597.2	600.2	606.2	611.6	610.6	610.3	604.3	598.3	594.6	598.3	604.3
32.5°	565.2	569.2	578.2	585.6	587.3	584.3	576.3	566.6	562.6	566.6	576.3
35°	531.6	533.6	546.6	556.6	558.6	554.6	544.6	531.6	529.6	531.6	544.6
37.5°	498.6	497.6	510.6	528.6	532.3	526.6	508.6	495.6	496.6	495.6	508.6
40°	464.6	462.6	472.6	495.9	501.3	494.6	470.0	460.0	462.0	460.0	470.0
42.5°	432.6	430.6	434.9	461.9	472.3	460.6	433.0	428.0	430.0	428.0	433.0
45°	400.9	397.9	398.9	422.9	437.3	421.6	396.3	396.0	399.0	396.0	396.3
47.5°	372.9	367.9	364.9	382.3	403.3	381.6	362.3	366.0	371.0	366.0	362.3
50°	344.9	339.9	331.9	344.3	360.6	343.0	329.3	337.3	343.0	337.3	329.3
52.5°	316.9	313.9	302.3	308.3	313.6	307.0	300.3	311.3	315.0	311.3	300.3
55°	292.3	288.3	274.3	271.6	264.0	270.3	272.3	286.3	291.0	286.3	272.3
57.5°	265.3	263.3	246.3	234.6	221.0	233.3	244.3	261.3	264.0	261.3	244.3
60°	239.6	234.6	214.6	198.0	188.0	197.3	213.3	233.3	239.0	233.3	213.3
62.5°	209.6	206.6	184.6	164.0	159.3	163.3	183.3	205.3	209.0	205.3	183.3
65°	183.0	177.0	155.0	137.0	135.3	136.3	154.3	176.3	183.0	176.3	154.3
67.5°	158.0	148.0	129.0	113.3	114.3	113.3	128.3	147.3	158.0	147.3	128.3
70°	132.3	121.3	106.3	93.3	97.3	93.3	106.3	122.0	133.0	122.0	106.3
72.5°	111.3	98.3	86.3	76.3	79.7	75.7	86.3	99.0	112.6	99.0	86.3
75°	91.3	78.3	67.7	60.7	65.7	60.7	68.3	79.0	93.3	79.0	68.3
77.5°	80.5	66.9	51.7	48.7	52.7	48.7	52.3	65.0	77.9	65.0	52.3
80°	77.7	65.1	41.6	36.7	40.7	36.7	40.3	54.6	65.2	54.6	40.3
82.5°	82.3	72.5	43.5	25.7	27.7	25.7	35.6	48.9	57.5	48.9	35.6
85°	93.6	85.1	52.8	21.6	16.7	20.3	33.9	45.2	51.1	45.2	33.9
87.5°	109.2	104.3	66.8	27.4	4.0	18.3	29.5	41.5	41.8	41.5	29.5
90°	128.7	125.1	86.4	37.2	0.7	12.3	21.6	32.9	30.6	32.9	21.6
92.5°	152.4	147.6	107.5	51.4	10.5	6.3	18.0	26.6	24.3	26.6	18.0
95°	174.9	172.0	130.7	69.0	26.2	3.6	13.0	20.3	20.0	20.3	13.0
97.5°	198.7	195.4	153.4	91.5	46.4	7.8	8.9	15.6	15.6	15.6	8.9
100°	219.2	217.6	178.9	119.7	71.3	21.6	5.6	12.2	13.2	12.2	5.6
102.5°	252.5	242.6	205.7	146.5	98.1	40.5	10.8	7.2	9.2	7.2	10.8
105°	280.9	271.7	237.7	175.6	129.8	67.0	26.5	8.8	5.6	8.8	26.5
107.5°	309.0	302.5	266.5	204.4	162.5	96.5	48.7	25.2	16.0	25.2	48.7
110°	341.7	333.8	294.6	233.1	196.5	127.9	74.2	46.1	35.7	46.1	74.2



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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°	373.1	367.2	320.8	263.2	231.8	161.9	105.6	72.3	62.5	72.3	105.6
115°	397.3	394.0	350.8	291.3	264.5	200.4	140.3	103.0	91.2	103.0	140.3
117.5°	422.8	422.1	373.1	320.1	303.8	235.1	172.3	133.7	121.3	133.7	172.3
120°	454.8	449.6	403.8	348.9	341.0	271.7	207.6	169.1	156.6	169.1	207.6
122.5°	477.1	473.8	430.0	376.3	376.3	309.0	241.6	203.1	190.0	203.1	241.6
125°	497.3	496.0	449.6	403.8	414.3	343.7	279.6	240.3	225.9	240.3	279.6
127.5°	515.6	517.6	475.1	433.9	452.9	379.0	316.8	273.7	258.6	273.7	316.8
130°	531.3	537.9	499.3	461.4	489.5	417.5	350.2	307.0	297.2	307.0	350.2
132.5°	562.1	558.1	524.1	489.5	528.7	452.9	385.5	340.4	329.3	340.4	385.5
135°	577.8	579.1	545.7	513.7	565.3	488.2	418.9	374.4	363.3	374.4	418.9
137.5°	596.7	592.8	562.7	543.1	599.3	522.2	451.5	410.4	392.7	410.4	451.5
140°	611.4	610.8	585.9	569.3	636.0	555.5	485.9	444.0	427.7	444.0	485.9
142.5°	625.8	629.8	608.2	598.0	672.6	590.8	521.9	476.1	460.4	476.1	521.9
145°	635.6	644.1	630.4	635.0	707.2	631.1	553.3	506.8	489.8	506.8	553.3
147.5°	652.0	663.1	646.8	660.5	737.3	665.7	584.6	538.9	523.8	538.9	584.6
150°	674.2	679.5	669.6	695.8	768.0	704.3	616.7	569.6	554.6	569.6	616.7
152.5°	691.9	698.4	687.3	734.4	792.2	739.6	652.0	599.7	582.0	599.7	652.0
155°	710.2	712.8	705.0	771.7	817.7	774.3	680.1	633.0	616.0	633.0	680.1
157.5°	727.2	732.4	723.3	799.8	840.0	804.4	712.2	666.4	651.3	666.4	712.2
160°	745.5	745.5	750.7	831.5	858.3	829.5	746.2	703.0	682.1	703.0	746.2
162.5°	747.5	759.9	788.0	854.4	875.9	852.4	782.8	729.2	710.8	729.2	782.8
165°	776.2	787.4	829.9	874.6	889.7	872.7	827.9	772.3	750.7	772.3	827.9
167.5°	806.3	829.9	862.9	897.5	902.7	891.6	861.6	824.0	804.4	824.0	861.6
170°	854.4	875.6	891.6	907.0	914.2	907.7	883.1	865.2	851.7	865.2	883.1
172.5°	892.9	906.0	912.6	922.7	918.1	915.5	902.7	893.6	887.1	893.6	902.7
175°	917.1	919.8	926.6	923.4	927.3	920.1	920.8	924.3	897.5	924.3	920.8
177.5°	925.6	930.2	927.9	922.1	922.7	921.4	924.0	925.6	921.7	925.6	924.0
180°	926.6	926.6	926.6	926.6	926.6	926.6	926.6	926.6	926.6	926.6	926.6



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	779.6	779.6	779.6	779.6	779.6	779.6
2.5°	776.2	774.9	776.9	779.2	777.9	776.6
5°	772.2	770.2	772.2	775.2	773.9	772.6
7.5°	765.6	764.2	766.2	767.6	767.6	766.3
10°	755.9	754.6	756.6	758.6	758.6	756.9
12.5°	743.9	742.3	743.9	745.9	746.6	746.2
15°	729.3	728.3	729.9	730.9	731.6	731.9
17.5°	715.3	714.3	715.3	714.9	715.6	716.9
20°	696.6	695.6	697.3	696.9	698.2	697.9
22.5°	676.6	676.6	677.3	677.9	677.2	676.2
25°	655.6	656.6	656.3	656.6	654.2	653.2
27.5°	633.3	633.6	633.9	632.6	629.2	625.2
30°	610.3	610.6	611.6	606.2	600.2	597.2
32.5°	584.3	587.3	585.6	578.2	569.2	565.2
35°	554.6	558.6	556.6	546.6	533.6	531.6
37.5°	526.6	532.3	528.6	510.6	497.6	498.6
40°	494.6	501.3	495.9	472.6	462.6	464.6
42.5°	460.6	472.3	461.9	434.9	430.6	432.6
45°	421.6	437.3	422.9	398.9	397.9	400.9
47.5°	381.6	403.3	382.3	364.9	367.9	372.9
50°	343.0	360.6	344.3	331.9	339.9	344.9
52.5°	307.0	313.6	308.3	302.3	313.9	316.9
55°	270.3	264.0	271.6	274.3	288.3	292.3
57.5°	233.3	221.0	234.6	246.3	263.3	265.3
60°	197.3	188.0	198.0	214.6	234.6	239.6
62.5°	163.3	159.3	164.0	184.6	206.6	209.6
65°	136.3	135.3	137.0	155.0	177.0	183.0
67.5°	113.3	114.3	113.3	129.0	148.0	158.0
70°	93.3	97.3	93.3	106.3	121.3	132.3
72.5°	75.7	79.7	76.3	86.3	98.3	111.3
75°	60.7	65.7	60.7	67.7	78.3	91.3
77.5°	48.7	52.7	48.7	51.7	66.9	80.5
80°	36.7	40.7	36.7	41.6	65.1	77.7
82.5°	25.7	27.7	25.7	43.5	72.5	82.3
85°	20.3	16.7	21.6	52.8	85.1	93.6
87.5°	18.3	4.0	27.4	66.8	104.3	109.2
90°	12.3	0.7	37.2	86.4	125.1	128.7
92.5°	6.3	10.5	51.4	107.5	147.6	152.4
95°	3.6	26.2	69.0	130.7	172.0	174.9
97.5°	7.8	46.4	91.5	153.4	195.4	198.7
100°	21.6	71.3	119.7	178.9	217.6	219.2
102.5°	40.5	98.1	146.5	205.7	242.6	252.5
105°	67.0	129.8	175.6	237.7	271.7	280.9
107.5°	96.5	162.5	204.4	266.5	302.5	309.0
110°	127.9	196.5	233.1	294.6	333.8	341.7





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	161.9	231.8	263.2	320.8	367.2	373.1
115°	200.4	264.5	291.3	350.8	394.0	397.3
117.5°	235.1	303.8	320.1	373.1	422.1	422.8
120°	271.7	341.0	348.9	403.8	449.6	454.8
122.5°	309.0	376.3	376.3	430.0	473.8	477.1
125°	343.7	414.3	403.8	449.6	496.0	497.3
127.5°	379.0	452.9	433.9	475.1	517.6	515.6
130°	417.5	489.5	461.4	499.3	537.9	531.3
132.5°	452.9	528.7	489.5	524.1	558.1	562.1
135°	488.2	565.3	513.7	545.7	579.1	577.8
137.5°	522.2	599.3	543.1	562.7	592.8	596.7
140°	555.5	636.0	569.3	585.9	610.8	611.4
142.5°	590.8	672.6	598.0	608.2	629.8	625.8
145°	631.1	707.2	635.0	630.4	644.1	635.6
147.5°	665.7	737.3	660.5	646.8	663.1	652.0
150°	704.3	768.0	695.8	669.6	679.5	674.2
152.5°	739.6	792.2	734.4	687.3	698.4	691.9
155°	774.3	817.7	771.7	705.0	712.8	710.2
157.5°	804.4	840.0	799.8	723.3	732.4	727.2
160°	829.5	858.3	831.5	750.7	745.5	745.5
162.5°	852.4	875.9	854.4	788.0	759.9	747.5
165°	872.7	889.7	874.6	829.9	787.4	776.2
167.5°	891.6	902.7	897.5	862.9	829.9	806.3
170°	907.7	914.2	907.0	891.6	875.6	854.4
172.5°	915.5	918.1	922.7	912.6	906.0	892.9
175°	920.1	927.3	923.4	926.6	919.8	917.1
177.5°	921.4	922.7	922.1	927.9	930.2	925.6
180°	926.6	926.6	926.6	926.6	926.6	926.6

(END OF REPORT)