

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: P392538

Luminaire Tested: **MWL-2-35-23-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392538
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-2-35-23-UNV-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4815.5 lumens
Efficiency: N/A
Efficacy: 73.5 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

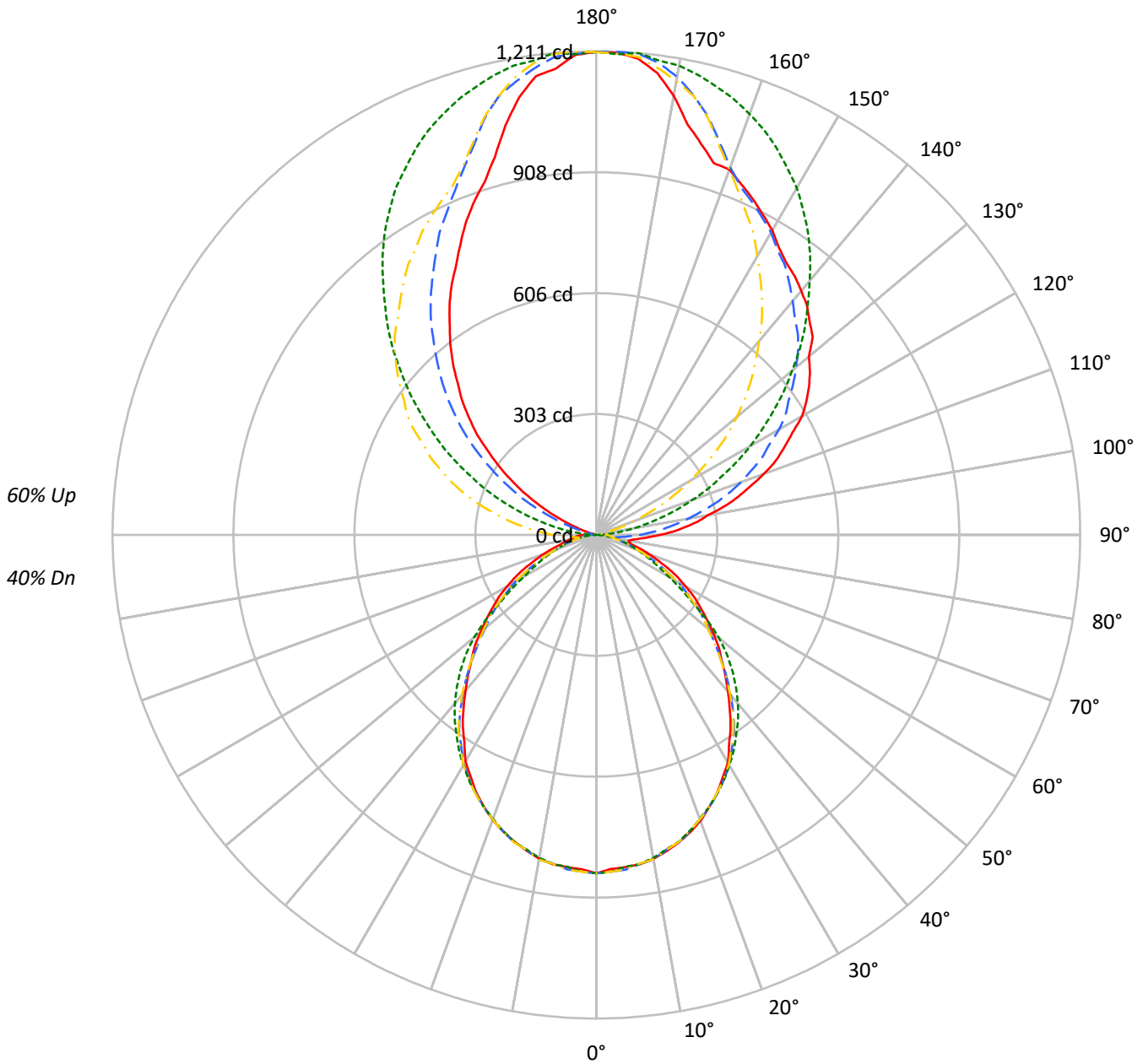
Input Watts (W): 65.549
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47	40
1	96	92	88	84	87	83	80	77	68	66	64	55	53	52	42	41	40	34
2	87	80	74	69	79	73	68	64	60	57	54	48	46	44	37	36	34	29
3	80	71	64	58	73	65	59	54	53	49	45	43	40	37	33	31	29	25
4	73	63	55	49	66	58	51	46	48	43	39	38	35	32	30	28	26	22
5	67	56	48	42	61	51	45	39	43	38	34	35	31	28	27	25	23	19
6	62	50	42	37	56	46	39	34	39	33	29	31	28	25	25	22	20	17
7	57	45	38	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15
8	53	41	34	29	48	38	31	27	32	27	23	26	22	20	21	18	16	14
9	50	38	30	25	45	35	28	24	29	24	21	24	20	18	19	16	14	12
10	46	35	27	23	42	32	26	21	27	22	19	22	19	16	18	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	10943	10943	10943	10943
5°	10630	9945	10630	9945
10°	10417	9153	10417	9153
15°	10096	8389	10064	8389
20°	9732	7626	9700	7626
25°	9275	6948	9241	6948
30°	8762	6292	8716	6292
35°	8060	5661	8025	5661
40°	7356	5053	7307	5053
45°	6703	4395	6665	4395
50°	6132	3658	6091	3658
55°	5526	2716	5497	2716
60°	4903	1975	4888	1975
65°	4189	1479	4189	1479
70°	3360	1095	3379	1095
75°	2566	772	2636	772
80°	2803	477	2250	477
85°	4729	206	2297	206



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	79.6	1.7
10°-20°	224.1	4.7
20°-30°	328.9	6.8
30°-40°	373.2	7.7
40°-50°	348.2	7.2
50°-60°	272.4	5.7
60°-70°	169.2	3.5
70°-80°	82.6	1.7
80°-90°	55.3	1.1
90°-100°	93.2	1.9
100°-110°	185.9	3.9
110°-120°	321.1	6.7
120°-130°	436.7	9.1
130°-140°	498.0	10.3
140°-150°	496.9	10.3
150°-160°	432.7	9.0
160°-170°	304.3	6.3
170°-180°	113.3	2.4
0°-30°	632.6	13.1
0°-40°	1005.8	20.9
0°-60°	1626.4	33.8
0°-90°	1933.5	40.2
90°-120°	600.2	12.5
90°-150°	2031.7	42.2
90°-180°	2882.0	59.8
0°-180°	4815.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	847	847	847	847	847	
5°	835	834	835	834	835	79
15°	797	795	795	795	797	225
25°	714	715	711	715	714	328
35°	586	610	583	610	586	365
45°	443	481	441	481	443	344
55°	318	293	317	293	318	285
65°	198	152	198	152	198	196
75°	91	73	94	73	91	105
85°	108	17	52	17	108	83
90°	159	1	31	1	159	88
95°	222	34	20	34	222	195
105°	366	169	7	169	366	386
115°	519	345	120	345	519	515
125°	650	541	295	541	650	580
135°	755	739	475	739	755	583
145°	830	924	640	924	830	523
155°	927	1068	804	1068	927	428
165°	1014	1162	980	1162	1014	288
175°	1197	1211	1172	1211	1197	112
180°	1209	1209	1209	1209	1209	



TEST NUMBER: P392538

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	847.2	847.2	847.2	847.2	847.2	847.2	847.2	847.2	847.2	847.2	847.2
2.5°	837.3	847.1	844.0	844.0	844.0	843.2	844.0	847.1	838.1	847.1	844.0
5°	834.8	842.2	841.5	840.7	834.1	840.7	840.7	842.2	834.8	842.2	840.7
7.5°	832.3	836.6	830.8	833.3	831.6	832.4	829.9	835.7	832.3	835.7	829.9
10°	823.4	825.0	825.8	821.8	820.9	820.9	824.9	823.4	823.4	823.4	824.9
12.5°	811.0	811.9	807.7	810.1	806.9	810.1	807.7	810.1	809.4	810.1	807.7
15°	797.1	800.4	797.0	794.6	795.4	793.7	796.1	798.6	794.6	798.6	796.1
17.5°	780.7	781.4	778.1	777.3	777.3	777.3	777.3	780.6	778.1	780.6	777.3
20°	761.7	761.7	758.4	756.7	756.7	755.9	757.5	760.0	759.2	760.0	757.5
22.5°	737.9	742.0	737.8	739.4	737.0	738.7	737.0	740.2	736.2	740.2	737.0
25°	714.0	716.5	715.7	718.0	714.8	717.3	713.9	713.9	711.4	713.9	713.9
27.5°	684.4	687.7	691.0	693.4	691.7	692.6	689.3	685.2	681.9	685.2	689.3
30°	658.1	656.5	665.5	667.2	665.4	665.4	662.9	653.9	654.7	653.9	662.9
32.5°	618.6	623.6	631.8	640.8	639.9	639.2	629.2	620.2	615.3	620.2	629.2
35°	585.7	589.1	601.4	612.0	610.4	609.5	598.8	586.5	583.2	586.5	598.8
37.5°	548.7	549.5	562.7	580.8	582.4	578.2	560.2	547.1	546.2	547.1	560.2
40°	512.5	511.7	523.3	543.7	551.1	542.0	519.8	508.3	509.1	508.3	519.8
42.5°	478.0	474.8	482.1	509.2	516.6	507.5	479.5	471.2	474.6	471.2	479.5
45°	443.4	439.3	441.7	466.4	481.2	464.8	438.4	436.7	440.9	436.7	438.4
47.5°	415.4	404.8	402.3	422.8	443.4	422.0	399.0	402.2	412.9	402.2	399.0
50°	380.9	375.2	366.9	381.7	399.0	380.0	363.6	371.7	378.4	371.7	363.6
52.5°	348.9	346.4	334.1	340.6	348.0	338.9	331.5	343.0	346.3	343.0	331.5
55°	318.4	314.3	301.1	298.7	292.9	296.9	298.6	311.8	316.7	311.8	298.6
57.5°	290.5	284.7	266.6	259.2	249.3	257.5	264.1	282.1	288.7	282.1	264.1
60°	258.3	253.4	234.6	216.3	208.9	215.5	232.8	251.7	257.5	251.7	232.8
62.5°	228.8	220.6	197.5	180.2	177.7	179.4	195.8	218.8	227.9	218.8	195.8
65°	198.3	186.0	166.2	149.8	152.2	148.9	165.4	185.1	198.3	185.1	165.4
67.5°	166.2	155.5	138.2	122.6	129.2	122.6	137.4	154.7	166.2	154.7	137.4
70°	139.9	126.7	112.7	101.3	108.7	101.3	112.7	127.6	140.7	127.6	112.7
72.5°	113.6	102.0	90.5	83.1	88.0	82.2	90.5	102.8	115.3	102.8	90.5
75°	91.4	80.7	70.7	65.0	73.2	65.0	71.6	81.5	93.9	81.5	71.6
77.5°	82.6	68.4	53.4	51.8	58.4	51.8	54.3	65.9	79.1	65.9	54.3
80°	82.2	69.7	43.8	38.7	42.8	38.7	42.0	56.1	66.0	56.1	42.0
82.5°	91.3	80.3	47.4	28.0	30.5	28.0	37.2	49.5	58.8	49.5	37.2
85°	107.9	99.3	60.4	23.2	17.3	21.5	35.6	47.2	52.4	47.2	35.6
87.5°	131.2	126.0	81.1	31.0	4.1	19.1	32.4	44.0	43.2	44.0	32.4
90°	158.7	153.6	107.7	44.0	0.8	11.6	23.2	33.0	30.6	33.0	23.2
92.5°	192.2	184.5	135.2	64.7	13.6	5.8	18.1	26.5	24.8	26.5	18.1
95°	222.2	217.1	166.2	89.6	34.2	4.3	12.4	19.0	19.8	19.0	12.4
97.5°	255.7	249.7	197.9	120.4	61.5	11.1	9.2	15.0	16.6	15.0	9.2
100°	283.2	279.9	233.2	157.1	93.9	29.1	6.9	11.8	14.3	11.8	6.9
102.5°	326.9	315.9	268.2	192.1	128.9	53.8	13.6	8.5	9.3	8.5	13.6
105°	366.4	354.3	309.9	228.8	169.1	87.1	34.2	11.1	6.9	11.1	34.2
107.5°	403.0	394.5	347.5	266.4	211.8	125.5	63.1	32.4	20.5	32.4	63.1
110°	445.8	435.5	384.3	304.0	256.1	166.5	96.5	59.8	46.1	59.8	96.5



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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°	486.7	479.1	418.4	343.2	302.3	211.0	137.5	93.9	81.1	93.9	137.5
115°	519.1	514.0	457.7	380.0	345.0	261.2	182.7	134.0	119.5	134.0	182.7
117.5°	552.4	551.6	486.7	417.6	396.2	306.6	224.6	175.0	158.8	175.0	224.6
120°	594.3	587.5	527.7	456.0	445.7	355.2	271.5	221.1	204.9	221.1	271.5
122.5°	623.3	619.1	561.9	491.8	491.8	403.9	315.9	265.6	248.4	265.6	315.9
125°	649.8	648.0	587.5	527.7	541.3	449.1	365.4	314.3	295.4	314.3	365.4
127.5°	673.8	676.3	620.8	567.0	591.8	495.3	414.1	357.8	338.1	357.8	414.1
130°	694.2	702.7	652.4	602.9	639.6	545.6	457.7	401.3	388.5	401.3	457.7
132.5°	734.3	729.2	684.9	639.6	690.8	591.8	503.7	444.9	430.3	444.9	503.7
135°	754.9	756.5	713.0	671.2	738.7	637.9	547.3	489.3	474.8	489.3	547.3
137.5°	779.7	774.5	735.2	709.6	783.0	682.3	590.0	536.2	513.2	536.2	590.0
140°	797.6	796.7	764.3	743.8	830.8	725.9	633.6	578.9	557.6	578.9	633.6
142.5°	816.3	821.5	793.3	781.4	878.7	771.9	680.5	620.8	600.3	620.8	680.5
145°	830.0	841.1	823.2	828.3	924.0	823.2	722.5	661.7	639.5	661.7	722.5
147.5°	851.4	865.8	844.5	862.4	963.3	869.3	763.4	703.6	684.0	703.6	763.4
150°	880.4	887.2	874.3	907.8	1003.4	918.9	805.2	743.7	724.0	743.7	805.2
152.5°	903.4	911.9	897.5	958.1	1034.9	964.9	851.4	783.0	760.0	783.0	851.4
155°	927.3	930.8	920.5	1006.8	1068.3	1010.2	888.1	826.6	804.4	826.6	888.1
157.5°	949.5	956.4	943.6	1043.6	1097.3	1049.5	929.1	870.1	850.5	870.1	929.1
160°	973.5	973.5	979.5	1086.2	1121.2	1083.6	973.5	917.9	890.5	917.9	973.5
162.5°	976.0	992.2	1028.2	1116.0	1144.3	1113.5	1021.3	952.1	928.1	952.1	1021.3
165°	1013.6	1027.3	1082.8	1142.5	1162.2	1140.0	1080.2	1007.6	980.3	1007.6	1080.2
167.5°	1052.9	1082.8	1127.1	1172.5	1179.3	1164.7	1125.5	1075.1	1050.3	1075.1	1125.5
170°	1116.0	1142.5	1164.7	1183.6	1193.0	1184.4	1153.6	1128.9	1112.7	1128.9	1153.6
172.5°	1166.5	1183.6	1192.1	1204.1	1198.0	1194.7	1179.3	1167.4	1158.8	1167.4	1179.3
175°	1197.2	1201.5	1209.2	1205.8	1210.9	1201.5	1201.5	1207.5	1171.7	1207.5	1201.5
177.5°	1208.3	1215.2	1210.9	1204.1	1204.9	1203.1	1205.8	1209.2	1203.2	1209.2	1205.8
180°	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2



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CATALOG NUMBER: MWL-2-35-23-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	847.2	847.2	847.2	847.2	847.2	847.2
2.5°	843.2	844.0	844.0	844.0	847.1	837.3
5°	840.7	834.1	840.7	841.5	842.2	834.8
7.5°	832.4	831.6	833.3	830.8	836.6	832.3
10°	820.9	820.9	821.8	825.8	825.0	823.4
12.5°	810.1	806.9	810.1	807.7	811.9	811.0
15°	793.7	795.4	794.6	797.0	800.4	797.1
17.5°	777.3	777.3	777.3	778.1	781.4	780.7
20°	755.9	756.7	756.7	758.4	761.7	761.7
22.5°	738.7	737.0	739.4	737.8	742.0	737.9
25°	717.3	714.8	718.0	715.7	716.5	714.0
27.5°	692.6	691.7	693.4	691.0	687.7	684.4
30°	665.4	665.4	667.2	665.5	656.5	658.1
32.5°	639.2	639.9	640.8	631.8	623.6	618.6
35°	609.5	610.4	612.0	601.4	589.1	585.7
37.5°	578.2	582.4	580.8	562.7	549.5	548.7
40°	542.0	551.1	543.7	523.3	511.7	512.5
42.5°	507.5	516.6	509.2	482.1	474.8	478.0
45°	464.8	481.2	466.4	441.7	439.3	443.4
47.5°	422.0	443.4	422.8	402.3	404.8	415.4
50°	380.0	399.0	381.7	366.9	375.2	380.9
52.5°	338.9	348.0	340.6	334.1	346.4	348.9
55°	296.9	292.9	298.7	301.1	314.3	318.4
57.5°	257.5	249.3	259.2	266.6	284.7	290.5
60°	215.5	208.9	216.3	234.6	253.4	258.3
62.5°	179.4	177.7	180.2	197.5	220.6	228.8
65°	148.9	152.2	149.8	166.2	186.0	198.3
67.5°	122.6	129.2	122.6	138.2	155.5	166.2
70°	101.3	108.7	101.3	112.7	126.7	139.9
72.5°	82.2	88.0	83.1	90.5	102.0	113.6
75°	65.0	73.2	65.0	70.7	80.7	91.4
77.5°	51.8	58.4	51.8	53.4	68.4	82.6
80°	38.7	42.8	38.7	43.8	69.7	82.2
82.5°	28.0	30.5	28.0	47.4	80.3	91.3
85°	21.5	17.3	23.2	60.4	99.3	107.9
87.5°	19.1	4.1	31.0	81.1	126.0	131.2
90°	11.6	0.8	44.0	107.7	153.6	158.7
92.5°	5.8	13.6	64.7	135.2	184.5	192.2
95°	4.3	34.2	89.6	166.2	217.1	222.2
97.5°	11.1	61.5	120.4	197.9	249.7	255.7
100°	29.1	93.9	157.1	233.2	279.9	283.2
102.5°	53.8	128.9	192.1	268.2	315.9	326.9
105°	87.1	169.1	228.8	309.9	354.3	366.4
107.5°	125.5	211.8	266.4	347.5	394.5	403.0
110°	166.5	256.1	304.0	384.3	435.5	445.8



TEST NUMBER: P392538

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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	211.0	302.3	343.2	418.4	479.1	486.7
115°	261.2	345.0	380.0	457.7	514.0	519.1
117.5°	306.6	396.2	417.6	486.7	551.6	552.4
120°	355.2	445.7	456.0	527.7	587.5	594.3
122.5°	403.9	491.8	491.8	561.9	619.1	623.3
125°	449.1	541.3	527.7	587.5	648.0	649.8
127.5°	495.3	591.8	567.0	620.8	676.3	673.8
130°	545.6	639.6	602.9	652.4	702.7	694.2
132.5°	591.8	690.8	639.6	684.9	729.2	734.3
135°	637.9	738.7	671.2	713.0	756.5	754.9
137.5°	682.3	783.0	709.6	735.2	774.5	779.7
140°	725.9	830.8	743.8	764.3	796.7	797.6
142.5°	771.9	878.7	781.4	793.3	821.5	816.3
145°	823.2	924.0	828.3	823.2	841.1	830.0
147.5°	869.3	963.3	862.4	844.5	865.8	851.4
150°	918.9	1003.4	907.8	874.3	887.2	880.4
152.5°	964.9	1034.9	958.1	897.5	911.9	903.4
155°	1010.2	1068.3	1006.8	920.5	930.8	927.3
157.5°	1049.5	1097.3	1043.6	943.6	956.4	949.5
160°	1083.6	1121.2	1086.2	979.5	973.5	973.5
162.5°	1113.5	1144.3	1116.0	1028.2	992.2	976.0
165°	1140.0	1162.2	1142.5	1082.8	1027.3	1013.6
167.5°	1164.7	1179.3	1172.5	1127.1	1082.8	1052.9
170°	1184.4	1193.0	1183.6	1164.7	1142.5	1116.0
172.5°	1194.7	1198.0	1204.1	1192.1	1183.6	1166.5
175°	1201.5	1210.9	1205.8	1209.2	1201.5	1197.2
177.5°	1203.1	1204.9	1204.1	1210.9	1215.2	1208.3
180°	1209.2	1209.2	1209.2	1209.2	1209.2	1209.2

(END OF REPORT)