

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: P392503

Luminaire Tested: **MWL-2-22-13-UNV-L835-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392503
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-2-22-13-UNV-L835-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

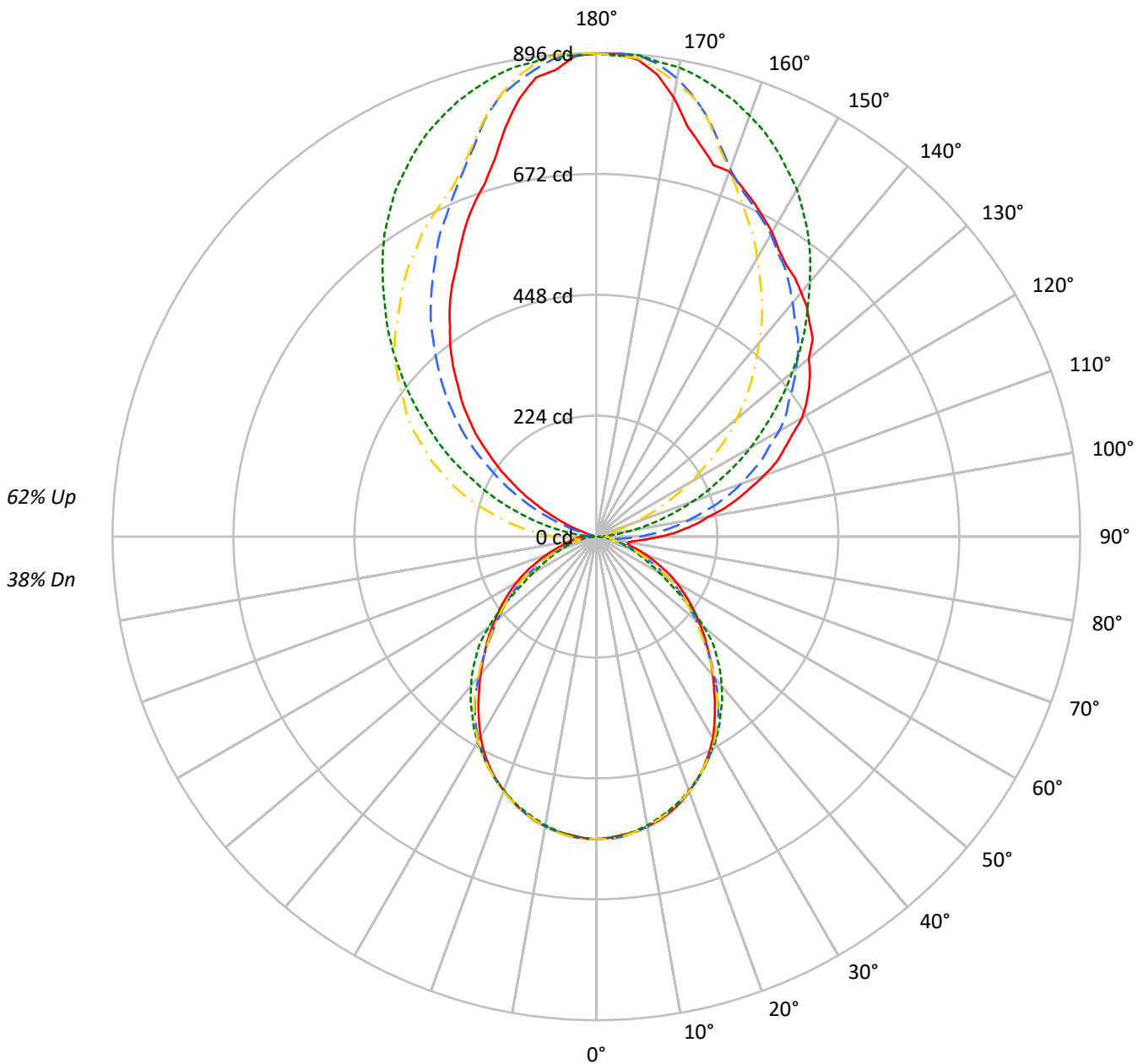
Lumens per Lamp: N/A
Luminaire Lumens: 3413.0 lumens
Efficiency: N/A
Efficacy: 101.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 33.5
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	104	104	104	104	94	94	94	94	76	76	76		60	60	60		45	45	45	38
1	95	91	87	84	86	83	79	76	67	65	63		53	51	50		40	39	38	32
2	87	80	74	69	78	72	67	63	59	55	52		47	44	42		35	34	32	27
3	79	70	63	58	72	64	58	53	52	48	44		41	38	36		31	29	28	23
4	73	62	55	49	66	57	50	45	47	42	38		37	34	31		28	26	24	20
5	67	56	48	42	60	51	44	39	42	37	33		33	30	27		26	23	21	18
6	61	50	42	36	56	46	39	34	38	33	29		30	27	24		23	21	19	16
7	57	45	37	32	51	41	34	30	34	29	25		28	24	21		21	19	17	14
8	53	41	33	28	48	37	31	26	31	26	22		25	21	19		20	17	15	13
9	49	37	30	25	45	34	28	23	29	24	20		23	20	17		18	16	14	11
10	46	34	27	22	42	31	25	21	26	21	18		21	18	15		17	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7239	7239	7239	7239
5°	7062	6620	7062	6620
10°	6897	6054	6897	6054
15°	6697	5529	6672	5529
20°	6423	5043	6397	5043
25°	6118	4592	6095	4592
30°	5743	4156	5710	4156
35°	5264	3718	5237	3718
40°	4824	3309	4788	3309
45°	4398	2882	4370	2882
50°	3999	2381	3968	2381
55°	3646	1767	3624	1767
60°	3259	1289	3248	1289
65°	2799	943	2799	943
70°	2330	704	2347	704
75°	1828	507	1881	507
80°	2066	320	1654	320
85°	3502	135	1701	135



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.8	1.5
10°-20°	148.3	4.3
20°-30°	216.9	6.4
30°-40°	244.9	7.2
40°-50°	227.7	6.7
50°-60°	179.0	5.2
60°-70°	113.6	3.3
70°-80°	57.0	1.7
80°-90°	40.2	1.2
90°-100°	69.2	2.0
100°-110°	137.6	4.0
110°-120°	237.9	7.0
120°-130°	323.1	9.5
130°-140°	368.5	10.8
140°-150°	367.5	10.8
150°-160°	320.1	9.4
160°-170°	225.2	6.6
170°-180°	83.9	2.5
0°-30°	417.9	12.2
0°-40°	662.8	19.4
0°-60°	1069.5	31.3
0°-90°	1280.2	37.5
90°-120°	444.6	13.0
90°-150°	1503.7	44.1
90°-180°	2133.0	62.5
0°-180°	3413.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	560	560	560	560	560	
5°	555	555	555	555	555	53
15°	529	524	527	524	529	149
25°	471	472	469	472	471	216
35°	382	401	381	401	382	239
45°	291	316	289	316	291	225
55°	210	190	209	190	210	188
65°	132	97	132	97	132	132
75°	65	48	67	48	65	75
85°	80	11	39	11	80	62
90°	118	1	23	1	118	65
95°	164	25	14	25	164	144
105°	272	124	5	124	272	286
115°	384	256	88	256	384	381
125°	481	401	218	401	481	429
135°	559	547	351	547	559	431
145°	614	684	473	684	614	387
155°	686	791	595	791	686	316
165°	750	860	725	860	750	213
175°	887	896	868	896	887	83
180°	895	895	895	895	895	



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L835-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4	560.4
2.5°	558.5	559.7	561.0	559.7	558.7	559.0	561.0	559.7	559.1	559.7	561.0
5°	554.6	556.8	558.1	556.1	555.2	556.1	557.5	556.8	554.6	556.8	557.5
7.5°	551.4	552.7	552.7	551.3	550.3	550.7	552.0	552.0	551.4	552.0	552.0
10°	545.2	545.9	545.9	544.9	543.0	544.2	545.2	544.6	545.2	544.6	545.2
12.5°	538.7	538.1	536.5	535.5	534.0	535.5	536.5	536.9	537.5	536.9	536.5
15°	528.8	527.5	526.8	526.8	524.3	526.3	526.3	526.3	526.8	526.3	526.3
17.5°	517.2	515.9	515.2	514.7	513.7	514.7	514.7	515.2	515.2	515.2	514.7
20°	502.7	503.0	502.7	501.1	500.4	500.4	502.1	501.7	500.7	501.7	502.1
22.5°	487.5	487.5	488.2	488.5	486.9	487.9	487.6	486.2	486.2	486.2	487.6
25°	471.0	471.0	472.4	473.1	472.4	472.4	471.1	469.2	469.2	469.2	471.1
27.5°	451.7	452.7	456.0	457.2	456.0	456.6	454.7	450.8	449.9	450.8	454.7
30°	431.4	433.3	438.2	440.5	439.5	439.2	436.3	431.5	428.9	431.5	436.3
32.5°	407.2	410.1	416.9	422.1	421.8	420.9	415.1	407.6	404.7	407.6	415.1
35°	382.5	385.4	394.1	401.8	400.9	399.9	392.2	383.5	380.6	383.5	392.2
37.5°	358.3	359.3	368.9	380.6	382.2	378.6	367.0	357.3	356.4	357.3	367.0
40°	336.1	334.1	340.9	357.6	360.9	356.4	338.4	331.6	333.6	331.6	338.4
42.5°	312.9	310.0	314.1	332.5	339.7	331.2	312.3	307.5	310.4	307.5	312.3
45°	290.9	288.0	287.1	305.4	315.5	304.2	284.5	286.2	289.1	286.2	284.5
47.5°	270.6	265.8	262.9	276.8	292.3	276.1	260.4	263.9	268.8	263.9	260.4
50°	248.4	246.4	240.6	248.8	259.7	247.5	238.1	243.9	246.5	243.9	238.1
52.5°	230.0	227.1	218.8	222.7	226.8	221.4	216.9	224.6	228.2	224.6	216.9
55°	210.1	208.2	197.5	196.9	190.5	195.6	195.6	206.2	208.8	206.2	195.6
57.5°	190.8	188.8	177.2	169.8	159.5	168.5	175.3	186.9	189.5	186.9	175.3
60°	171.7	169.8	155.3	144.1	136.3	143.4	154.0	168.5	171.1	168.5	154.0
62.5°	153.3	149.5	133.0	118.9	114.4	118.2	131.8	148.2	152.8	148.2	131.8
65°	132.5	127.6	112.2	99.6	97.0	98.9	111.5	126.9	132.5	126.9	111.5
67.5°	114.1	107.3	94.8	82.5	83.4	82.5	94.1	106.6	114.1	106.6	94.1
70°	97.0	88.3	76.7	68.0	69.9	68.0	76.7	89.0	97.7	89.0	76.7
72.5°	80.5	70.9	62.2	55.4	57.7	54.8	62.2	71.5	81.8	71.5	62.2
75°	65.1	57.3	48.1	44.2	48.1	44.2	48.6	58.0	67.0	58.0	48.6
77.5°	59.5	49.2	37.4	34.5	38.4	34.5	38.0	47.4	56.9	47.4	38.0
80°	60.6	50.4	30.6	26.8	28.7	26.8	29.3	40.2	48.5	40.2	29.3
82.5°	67.0	58.5	33.4	19.0	20.0	19.0	25.7	35.7	43.0	35.7	25.7
85°	79.9	73.6	44.3	16.0	11.3	14.8	26.0	35.0	38.8	35.0	26.0
87.5°	97.8	93.1	59.8	22.6	2.9	13.8	23.7	32.4	32.7	32.4	23.7
90°	117.7	113.2	79.7	33.1	0.7	9.0	17.0	24.1	22.8	24.1	17.0
92.5°	142.5	136.9	100.1	48.7	10.2	5.1	13.5	19.9	18.7	19.9	13.5
95°	164.3	161.5	123.5	65.7	25.3	2.5	9.7	14.8	14.5	14.8	9.7
97.5°	189.2	185.1	147.3	88.5	44.9	7.5	7.6	11.2	12.2	11.2	7.6
100°	210.0	208.5	173.0	115.7	68.9	20.9	5.4	9.9	10.8	9.9	5.4
102.5°	243.2	234.6	197.9	141.6	94.8	39.2	9.5	7.0	7.9	7.0	9.5
105°	271.6	262.7	228.9	168.8	124.5	63.8	24.7	8.5	5.4	8.5	24.7
107.5°	298.8	292.5	257.7	196.7	156.1	92.3	47.1	24.4	15.5	24.4	47.1
110°	330.4	322.7	284.8	225.4	189.0	123.7	71.7	44.6	34.5	44.6	71.7



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	360.7	355.0	310.2	254.5	224.1	156.5	102.1	69.9	60.4	69.9	102.1
115°	384.1	380.9	339.2	281.6	255.7	193.8	135.6	99.6	88.2	99.6	135.6
117.5°	408.8	408.1	360.7	309.5	293.7	227.3	166.6	129.3	117.3	129.3	166.6
120°	439.7	434.7	390.4	337.3	329.7	262.7	200.7	163.5	151.4	163.5	200.7
122.5°	461.3	458.1	415.7	363.8	363.8	298.8	233.6	196.4	183.7	196.4	233.6
125°	480.8	479.6	434.7	390.4	400.6	332.3	270.3	232.3	218.4	232.3	270.3
127.5°	498.5	500.4	459.3	419.5	437.9	366.4	306.3	264.6	250.0	264.6	306.3
130°	513.7	520.1	482.7	446.1	473.3	403.7	338.6	296.8	287.3	296.8	338.6
132.5°	543.5	539.6	506.7	473.3	511.2	437.9	372.7	329.1	318.4	329.1	372.7
135°	558.6	559.9	527.6	496.7	546.6	472.0	405.0	362.0	351.3	362.0	405.0
137.5°	576.9	573.1	544.0	525.1	579.4	504.9	436.5	396.8	379.7	396.8	436.5
140°	590.2	589.6	565.5	550.4	614.9	537.1	468.8	428.3	412.6	428.3	468.8
142.5°	604.1	608.0	587.1	578.2	650.3	571.2	503.6	459.3	444.2	459.3	503.6
145°	613.6	621.8	608.5	613.0	683.8	609.2	534.0	489.0	472.6	489.0	534.0
147.5°	629.4	640.2	624.4	637.6	712.9	642.7	564.3	520.1	505.5	520.1	564.3
150°	650.9	656.0	646.4	671.8	742.5	680.0	595.3	549.7	535.2	549.7	595.3
152.5°	668.0	674.3	663.5	709.1	765.9	714.1	629.4	578.9	561.7	578.9	629.4
155°	685.7	688.2	680.7	745.1	790.6	747.7	656.6	611.0	594.6	611.0	656.6
157.5°	702.1	707.2	698.4	772.3	812.2	776.8	687.6	643.3	628.7	643.3	687.6
160°	719.8	719.8	724.8	803.9	829.8	802.0	720.5	678.7	658.5	678.7	720.5
162.5°	721.8	733.7	760.9	826.1	846.9	824.1	755.9	704.1	686.3	704.1	755.9
165°	749.5	760.3	801.4	845.6	860.2	843.8	799.5	745.7	724.8	745.7	799.5
167.5°	778.6	801.4	834.3	867.7	872.8	862.0	833.0	795.7	776.8	795.7	833.0
170°	826.1	845.6	862.0	876.0	882.9	876.6	853.8	835.6	823.5	835.6	853.8
172.5°	863.3	876.0	882.3	891.1	886.7	884.2	872.8	864.0	857.7	864.0	872.8
175°	886.7	889.3	894.9	891.8	895.6	888.6	889.3	893.7	867.7	893.7	889.3
177.5°	894.9	899.4	896.2	890.6	891.1	889.9	892.4	894.9	891.1	894.9	892.4
180°	894.9	894.9	894.9	894.9	894.9	894.9	894.9	894.9	894.9	894.9	894.9



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	560.4	560.4	560.4	560.4	560.4	560.4
2.5°	559.0	558.7	559.7	561.0	559.7	558.5
5°	556.1	555.2	556.1	558.1	556.8	554.6
7.5°	550.7	550.3	551.3	552.7	552.7	551.4
10°	544.2	543.0	544.9	545.9	545.9	545.2
12.5°	535.5	534.0	535.5	536.5	538.1	538.7
15°	526.3	524.3	526.8	526.8	527.5	528.8
17.5°	514.7	513.7	514.7	515.2	515.9	517.2
20°	500.4	500.4	501.1	502.7	503.0	502.7
22.5°	487.9	486.9	488.5	488.2	487.5	487.5
25°	472.4	472.4	473.1	472.4	471.0	471.0
27.5°	456.6	456.0	457.2	456.0	452.7	451.7
30°	439.2	439.5	440.5	438.2	433.3	431.4
32.5°	420.9	421.8	422.1	416.9	410.1	407.2
35°	399.9	400.9	401.8	394.1	385.4	382.5
37.5°	378.6	382.2	380.6	368.9	359.3	358.3
40°	356.4	360.9	357.6	340.9	334.1	336.1
42.5°	331.2	339.7	332.5	314.1	310.0	312.9
45°	304.2	315.5	305.4	287.1	288.0	290.9
47.5°	276.1	292.3	276.8	262.9	265.8	270.6
50°	247.5	259.7	248.8	240.6	246.4	248.4
52.5°	221.4	226.8	222.7	218.8	227.1	230.0
55°	195.6	190.5	196.9	197.5	208.2	210.1
57.5°	168.5	159.5	169.8	177.2	188.8	190.8
60°	143.4	136.3	144.1	155.3	169.8	171.7
62.5°	118.2	114.4	118.9	133.0	149.5	153.3
65°	98.9	97.0	99.6	112.2	127.6	132.5
67.5°	82.5	83.4	82.5	94.8	107.3	114.1
70°	68.0	69.9	68.0	76.7	88.3	97.0
72.5°	54.8	57.7	55.4	62.2	70.9	80.5
75°	44.2	48.1	44.2	48.1	57.3	65.1
77.5°	34.5	38.4	34.5	37.4	49.2	59.5
80°	26.8	28.7	26.8	30.6	50.4	60.6
82.5°	19.0	20.0	19.0	33.4	58.5	67.0
85°	14.8	11.3	16.0	44.3	73.6	79.9
87.5°	13.8	2.9	22.6	59.8	93.1	97.8
90°	9.0	0.7	33.1	79.7	113.2	117.7
92.5°	5.1	10.2	48.7	100.1	136.9	142.5
95°	2.5	25.3	65.7	123.5	161.5	164.3
97.5°	7.5	44.9	88.5	147.3	185.1	189.2
100°	20.9	68.9	115.7	173.0	208.5	210.0
102.5°	39.2	94.8	141.6	197.9	234.6	243.2
105°	63.8	124.5	168.8	228.9	262.7	271.6
107.5°	92.3	156.1	196.7	257.7	292.5	298.8
110°	123.7	189.0	225.4	284.8	322.7	330.4



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L835-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	156.5	224.1	254.5	310.2	355.0	360.7
115°	193.8	255.7	281.6	339.2	380.9	384.1
117.5°	227.3	293.7	309.5	360.7	408.1	408.8
120°	262.7	329.7	337.3	390.4	434.7	439.7
122.5°	298.8	363.8	363.8	415.7	458.1	461.3
125°	332.3	400.6	390.4	434.7	479.6	480.8
127.5°	366.4	437.9	419.5	459.3	500.4	498.5
130°	403.7	473.3	446.1	482.7	520.1	513.7
132.5°	437.9	511.2	473.3	506.7	539.6	543.5
135°	472.0	546.6	496.7	527.6	559.9	558.6
137.5°	504.9	579.4	525.1	544.0	573.1	576.9
140°	537.1	614.9	550.4	565.5	589.6	590.2
142.5°	571.2	650.3	578.2	587.1	608.0	604.1
145°	609.2	683.8	613.0	608.5	621.8	613.6
147.5°	642.7	712.9	637.6	624.4	640.2	629.4
150°	680.0	742.5	671.8	646.4	656.0	650.9
152.5°	714.1	765.9	709.1	663.5	674.3	668.0
155°	747.7	790.6	745.1	680.7	688.2	685.7
157.5°	776.8	812.2	772.3	698.4	707.2	702.1
160°	802.0	829.8	803.9	724.8	719.8	719.8
162.5°	824.1	846.9	826.1	760.9	733.7	721.8
165°	843.8	860.2	845.6	801.4	760.3	749.5
167.5°	862.0	872.8	867.7	834.3	801.4	778.6
170°	876.6	882.9	876.0	862.0	845.6	826.1
172.5°	884.2	886.7	891.1	882.3	876.0	863.3
175°	888.6	895.6	891.8	894.9	889.3	886.7
177.5°	889.9	891.1	890.6	896.2	899.4	894.9
180°	894.9	894.9	894.9	894.9	894.9	894.9

(END OF REPORT)