

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: P392492

Luminaire Tested: **MWL-2-18-17-UNV-L840-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392492
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-2-18-17-UNV-L840-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3554.2 lumens
Efficiency: N/A
Efficacy: 107.1 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

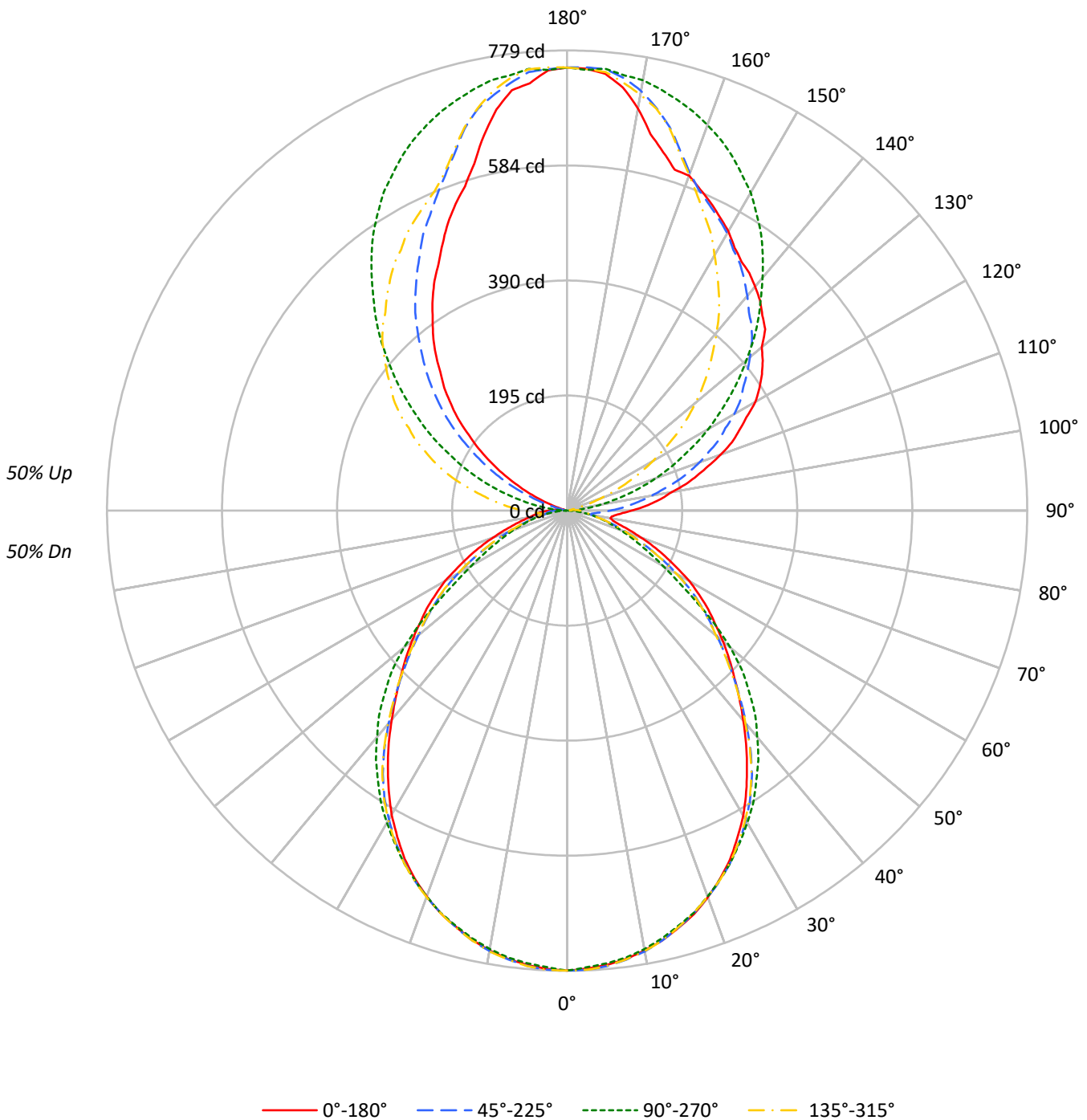
Input Watts (W): 33.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P392492

CATALOG NUMBER: MWL-2-18-17-UNV-L840-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P392492

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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	98	94	90	86	90	87	83	80	73	71	69	61	59	58	50	48	47	42
2	89	82	76	71	82	76	71	67	65	61	57	54	51	49	44	42	41	36
3	82	73	65	60	75	67	61	56	57	53	49	48	45	42	39	37	35	31
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	36	33	30	27
5	69	58	50	44	64	54	47	41	46	41	36	39	35	32	32	29	27	24
6	64	52	44	38	59	48	41	36	42	36	32	35	31	28	29	26	24	21
7	59	47	39	34	54	44	37	32	38	32	28	32	28	25	27	24	21	19
8	55	43	35	30	51	40	33	28	35	29	25	29	25	22	25	22	19	17
9	51	39	32	27	47	37	30	25	32	26	23	27	23	20	23	20	17	15
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	10058	10058	10058	10058
5°	9832	9171	9832	9171
10°	9567	8404	9567	8404
15°	9256	7674	9236	7674
20°	8903	7005	8882	7005
25°	8472	6377	8451	6377
30°	7938	5769	7910	5769
35°	7303	5176	7281	5176
40°	6655	4590	6625	4590
45°	6050	3988	6026	3988
50°	5541	3302	5515	3302
55°	5061	2445	5044	2445
60°	4539	1774	4529	1774
65°	3857	1313	3857	1313
70°	3173	979	3185	979
75°	2558	691	2600	691
80°	2533	452	2189	452
85°	3655	197	2148	197



TEST NUMBER: P392492

CATALOG NUMBER: MWL-2-18-17-UNV-L840-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.2	2.1
10°-20°	205.6	5.8
20°-30°	300.8	8.5
30°-40°	339.5	9.6
40°-50°	315.1	8.9
50°-60°	247.6	7.0
60°-70°	156.5	4.4
70°-80°	78.1	2.2
80°-90°	46.2	1.3
90°-100°	62.3	1.8
100°-110°	115.8	3.3
110°-120°	199.2	5.6
120°-130°	270.5	7.6
130°-140°	308.5	8.7
140°-150°	308.1	8.7
150°-160°	268.3	7.5
160°-170°	188.6	5.3
170°-180°	70.2	2.0
0°-30°	579.7	16.3
0°-40°	919.1	25.9
0°-60°	1481.8	41.7
0°-90°	1762.7	49.6
90°-120°	377.3	10.6
90°-150°	1264.4	35.6
90°-180°	1791.0	50.4
0°-180°	3554.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	779	779	779	779	779	
5°	772	769	772	769	772	73
15°	731	728	729	728	731	206
25°	652	656	651	656	652	299
35°	531	558	529	558	531	332
45°	400	437	399	437	400	310
55°	292	264	291	264	292	260
65°	183	135	183	135	183	182
75°	91	66	93	66	91	102
85°	83	16	49	16	83	66
90°	109	0	30	0	109	60
95°	145	21	20	21	145	126
105°	227	105	5	105	227	240
115°	322	214	74	214	322	319
125°	402	335	183	335	402	359
135°	468	458	294	458	468	361
145°	515	572	397	572	515	324
155°	575	662	499	662	575	265
165°	628	720	608	720	628	178
175°	742	750	726	750	742	69
180°	750	750	750	750	750	



TEST NUMBER: P392492

CATALOG NUMBER: MWL-2-18-17-UNV-L840-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7	778.7
2.5°	776.1	777.2	778.2	775.8	773.8	775.2	778.2	777.2	776.6	777.2	778.2
5°	772.1	773.2	774.2	771.2	769.2	771.2	773.7	773.2	772.1	773.2	773.7
7.5°	765.6	766.7	766.7	765.2	763.2	764.7	766.2	766.2	765.6	766.2	766.2
10°	756.2	757.7	757.7	755.7	753.7	755.2	757.2	756.6	756.2	756.6	757.2
12.5°	745.2	745.7	745.2	743.2	741.6	743.2	745.2	744.6	744.2	744.6	745.2
15°	730.8	730.7	730.2	729.2	727.6	728.6	729.6	729.6	729.2	729.6	729.6
17.5°	715.8	714.7	714.2	714.6	713.6	714.6	713.6	714.2	714.2	714.2	713.6
20°	696.8	697.2	696.2	696.6	695.1	696.1	695.6	696.2	695.2	696.2	695.6
22.5°	675.2	676.2	677.2	676.6	676.1	676.1	676.6	675.2	674.2	675.2	676.6
25°	652.2	653.2	655.7	655.6	656.1	655.1	654.6	651.6	650.6	651.6	654.6
27.5°	624.2	628.2	631.7	633.2	633.1	632.6	630.6	626.6	622.6	626.6	630.6
30°	596.2	599.2	605.2	610.7	610.1	609.6	603.6	597.6	594.1	597.6	603.6
32.5°	564.2	568.2	577.2	584.7	586.6	583.6	575.6	566.1	562.1	566.1	575.6
35°	530.7	532.7	545.7	555.7	558.1	554.1	544.1	531.1	529.1	531.1	544.1
37.5°	497.7	496.7	509.7	527.7	531.6	526.1	508.1	495.1	496.1	495.1	508.1
40°	463.7	461.7	471.7	495.2	500.6	494.1	469.6	459.6	461.6	459.6	469.6
42.5°	431.7	429.7	434.2	461.2	471.6	460.1	432.6	427.6	429.6	427.6	432.6
45°	400.2	397.2	398.2	422.2	436.6	421.1	396.1	395.6	398.6	395.6	396.1
47.5°	372.2	367.2	364.2	381.6	402.6	381.1	362.1	365.6	370.6	365.6	362.1
50°	344.2	339.2	331.2	343.6	360.1	342.6	329.1	337.1	342.6	337.1	329.1
52.5°	316.2	313.2	301.6	307.6	313.1	306.6	300.1	311.1	314.6	311.1	300.1
55°	291.6	287.6	273.6	271.1	263.6	270.1	272.1	286.1	290.6	286.1	272.1
57.5°	264.6	262.6	245.6	234.1	220.6	233.1	244.1	261.1	263.6	261.1	244.1
60°	239.1	234.1	214.1	197.6	187.6	197.1	213.1	233.1	238.6	233.1	213.1
62.5°	209.1	206.1	184.1	163.6	159.1	163.1	183.1	205.1	208.6	205.1	183.1
65°	182.6	176.6	154.6	136.6	135.1	136.1	154.1	176.1	182.6	176.1	154.1
67.5°	157.6	147.6	128.6	113.1	114.1	113.1	128.1	147.1	157.6	147.1	128.1
70°	132.1	121.1	106.1	93.1	97.1	93.1	106.1	121.6	132.6	121.6	106.1
72.5°	111.1	98.1	86.1	76.1	79.5	75.5	86.1	98.6	112.1	98.6	86.1
75°	91.1	78.1	67.5	60.5	65.5	60.5	68.1	78.6	92.6	78.6	68.1
77.5°	79.3	66.2	51.5	48.5	52.5	48.5	52.1	64.6	77.2	64.6	52.1
80°	74.3	62.6	41.1	36.5	40.5	36.5	40.1	54.1	64.2	54.1	40.1
82.5°	76.0	67.2	41.5	25.5	27.5	25.5	35.1	48.2	55.9	48.2	35.1
85°	83.4	76.1	48.1	21.1	16.5	20.1	32.8	43.8	49.0	43.8	32.8
87.5°	94.4	90.7	58.4	25.1	4.0	17.6	28.3	39.9	39.9	39.9	28.3
90°	109.0	106.8	73.5	32.2	0.5	12.1	21.1	32.2	29.7	32.2	21.1
92.5°	127.3	124.0	90.1	42.6	8.5	6.1	17.6	26.1	23.6	26.1	17.6
95°	144.9	142.8	107.8	56.0	21.2	3.1	12.6	20.1	19.6	20.1	12.6
97.5°	163.2	160.6	125.1	74.1	37.6	6.3	8.2	15.1	15.1	15.1	8.2
100°	178.9	177.3	144.9	96.8	57.7	17.5	4.7	11.2	12.2	11.2	4.7
102.5°	205.0	196.7	166.6	118.5	79.3	32.8	8.9	6.2	8.2	6.2	8.9
105°	227.4	220.0	192.5	142.2	105.2	54.4	21.6	7.3	4.7	7.3	21.6
107.5°	250.1	244.8	215.8	165.5	131.7	78.2	39.6	20.6	13.2	20.6	39.6
110°	276.6	270.2	238.5	188.8	159.2	103.6	60.2	37.5	29.0	37.5	60.2



TEST NUMBER: P392492

CATALOG NUMBER: MWL-2-18-17-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	302.0	297.2	259.7	213.1	187.7	131.1	85.6	58.7	50.7	58.7	85.6
115°	321.5	318.9	284.0	235.9	214.2	162.3	113.7	83.5	74.0	83.5	113.7
117.5°	342.2	341.6	302.0	259.1	245.9	190.4	139.6	108.4	98.3	108.4	139.6
120°	368.1	363.9	326.8	282.4	276.1	220.0	168.1	136.9	126.9	136.9	168.1
122.5°	386.1	383.4	348.0	304.6	304.6	250.1	195.7	164.4	153.9	164.4	195.7
125°	402.5	401.4	363.9	326.8	335.3	278.2	226.3	194.6	183.0	194.6	226.3
127.5°	417.3	418.9	384.5	351.2	366.5	306.7	256.5	221.6	209.4	221.6	256.5
130°	430.0	435.3	404.1	373.4	396.1	337.9	283.5	248.6	240.6	248.6	283.5
132.5°	454.8	451.7	424.2	396.1	427.9	366.5	312.0	275.5	266.5	275.5	312.0
135°	467.5	468.6	441.6	415.7	457.5	395.1	339.0	303.0	294.0	303.0	339.0
137.5°	482.9	479.7	455.4	439.5	485.0	422.6	365.4	332.1	317.8	332.1	365.4
140°	495.0	494.5	474.4	460.7	514.6	449.6	393.4	359.6	346.3	359.6	393.4
142.5°	506.6	509.8	492.3	483.9	544.2	478.1	422.5	385.5	372.8	385.5	422.5
145°	514.6	521.4	510.3	514.0	572.3	510.9	447.9	410.4	396.6	410.4	447.9
147.5°	527.8	536.8	523.5	534.7	596.6	538.9	473.3	436.3	424.1	436.3	473.3
150°	545.8	550.0	542.1	563.2	621.5	570.1	499.2	461.1	449.0	461.1	499.2
152.5°	560.0	565.3	556.3	594.4	641.0	598.7	527.8	485.5	471.2	485.5	527.8
155°	574.9	577.0	570.6	624.6	661.7	626.7	550.5	512.4	498.7	512.4	550.5
157.5°	588.6	592.8	585.4	647.3	679.6	651.0	576.4	539.4	527.3	539.4	576.4
160°	603.4	603.4	607.7	672.8	694.5	671.2	604.0	569.0	552.1	569.0	604.0
162.5°	605.0	615.1	637.8	691.3	708.7	689.7	633.6	590.2	575.4	590.2	633.6
165°	628.3	637.3	671.7	707.7	719.8	706.1	670.1	625.1	607.7	625.1	670.1
167.5°	652.6	671.7	698.2	726.2	730.4	721.4	697.1	666.9	651.0	666.9	697.1
170°	691.3	708.7	721.4	734.1	739.9	734.6	714.6	700.2	689.2	700.2	714.6
172.5°	722.5	733.1	738.4	746.8	743.1	740.9	730.4	723.0	717.7	723.0	730.4
175°	742.1	744.2	749.9	747.3	750.5	744.7	745.2	747.9	726.2	747.9	745.2
177.5°	748.9	752.6	751.0	746.2	746.8	745.7	747.8	748.9	745.8	748.9	747.8
180°	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9	749.9



TEST NUMBER: P392492

CATALOG NUMBER: MWL-2-18-17-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	778.7	778.7	778.7	778.7	778.7	778.7
2.5°	775.2	773.8	775.8	778.2	777.2	776.1
5°	771.2	769.2	771.2	774.2	773.2	772.1
7.5°	764.7	763.2	765.2	766.7	766.7	765.6
10°	755.2	753.7	755.7	757.7	757.7	756.2
12.5°	743.2	741.6	743.2	745.2	745.7	745.2
15°	728.6	727.6	729.2	730.2	730.7	730.8
17.5°	714.6	713.6	714.6	714.2	714.7	715.8
20°	696.1	695.1	696.6	696.2	697.2	696.8
22.5°	676.1	676.1	676.6	677.2	676.2	675.2
25°	655.1	656.1	655.6	655.7	653.2	652.2
27.5°	632.6	633.1	633.2	631.7	628.2	624.2
30°	609.6	610.1	610.7	605.2	599.2	596.2
32.5°	583.6	586.6	584.7	577.2	568.2	564.2
35°	554.1	558.1	555.7	545.7	532.7	530.7
37.5°	526.1	531.6	527.7	509.7	496.7	497.7
40°	494.1	500.6	495.2	471.7	461.7	463.7
42.5°	460.1	471.6	461.2	434.2	429.7	431.7
45°	421.1	436.6	422.2	398.2	397.2	400.2
47.5°	381.1	402.6	381.6	364.2	367.2	372.2
50°	342.6	360.1	343.6	331.2	339.2	344.2
52.5°	306.6	313.1	307.6	301.6	313.2	316.2
55°	270.1	263.6	271.1	273.6	287.6	291.6
57.5°	233.1	220.6	234.1	245.6	262.6	264.6
60°	197.1	187.6	197.6	214.1	234.1	239.1
62.5°	163.1	159.1	163.6	184.1	206.1	209.1
65°	136.1	135.1	136.6	154.6	176.6	182.6
67.5°	113.1	114.1	113.1	128.6	147.6	157.6
70°	93.1	97.1	93.1	106.1	121.1	132.1
72.5°	75.5	79.5	76.1	86.1	98.1	111.1
75°	60.5	65.5	60.5	67.5	78.1	91.1
77.5°	48.5	52.5	48.5	51.5	66.2	79.3
80°	36.5	40.5	36.5	41.1	62.6	74.3
82.5°	25.5	27.5	25.5	41.5	67.2	76.0
85°	20.1	16.5	21.1	48.1	76.1	83.4
87.5°	17.6	4.0	25.1	58.4	90.7	94.4
90°	12.1	0.5	32.2	73.5	106.8	109.0
92.5°	6.1	8.5	42.6	90.1	124.0	127.3
95°	3.1	21.2	56.0	107.8	142.8	144.9
97.5°	6.3	37.6	74.1	125.1	160.6	163.2
100°	17.5	57.7	96.8	144.9	177.3	178.9
102.5°	32.8	79.3	118.5	166.6	196.7	205.0
105°	54.4	105.2	142.2	192.5	220.0	227.4
107.5°	78.2	131.7	165.5	215.8	244.8	250.1
110°	103.6	159.2	188.8	238.5	270.2	276.6



TEST NUMBER: P392492

CATALOG NUMBER: MWL-2-18-17-UNV-L840-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	131.1	187.7	213.1	259.7	297.2	302.0
115°	162.3	214.2	235.9	284.0	318.9	321.5
117.5°	190.4	245.9	259.1	302.0	341.6	342.2
120°	220.0	276.1	282.4	326.8	363.9	368.1
122.5°	250.1	304.6	304.6	348.0	383.4	386.1
125°	278.2	335.3	326.8	363.9	401.4	402.5
127.5°	306.7	366.5	351.2	384.5	418.9	417.3
130°	337.9	396.1	373.4	404.1	435.3	430.0
132.5°	366.5	427.9	396.1	424.2	451.7	454.8
135°	395.1	457.5	415.7	441.6	468.6	467.5
137.5°	422.6	485.0	439.5	455.4	479.7	482.9
140°	449.6	514.6	460.7	474.4	494.5	495.0
142.5°	478.1	544.2	483.9	492.3	509.8	506.6
145°	510.9	572.3	514.0	510.3	521.4	514.6
147.5°	538.9	596.6	534.7	523.5	536.8	527.8
150°	570.1	621.5	563.2	542.1	550.0	545.8
152.5°	598.7	641.0	594.4	556.3	565.3	560.0
155°	626.7	661.7	624.6	570.6	577.0	574.9
157.5°	651.0	679.6	647.3	585.4	592.8	588.6
160°	671.2	694.5	672.8	607.7	603.4	603.4
162.5°	689.7	708.7	691.3	637.8	615.1	605.0
165°	706.1	719.8	707.7	671.7	637.3	628.3
167.5°	721.4	730.4	726.2	698.2	671.7	652.6
170°	734.6	739.9	734.1	721.4	708.7	691.3
172.5°	740.9	743.1	746.8	738.4	733.1	722.5
175°	744.7	750.5	747.3	749.9	744.2	742.1
177.5°	745.7	746.8	746.2	751.0	752.6	748.9
180°	749.9	749.9	749.9	749.9	749.9	749.9

(END OF REPORT)