

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: P392475

Luminaire Tested: **MWL-2-13-17-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392475
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-2-13-17-UNV-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

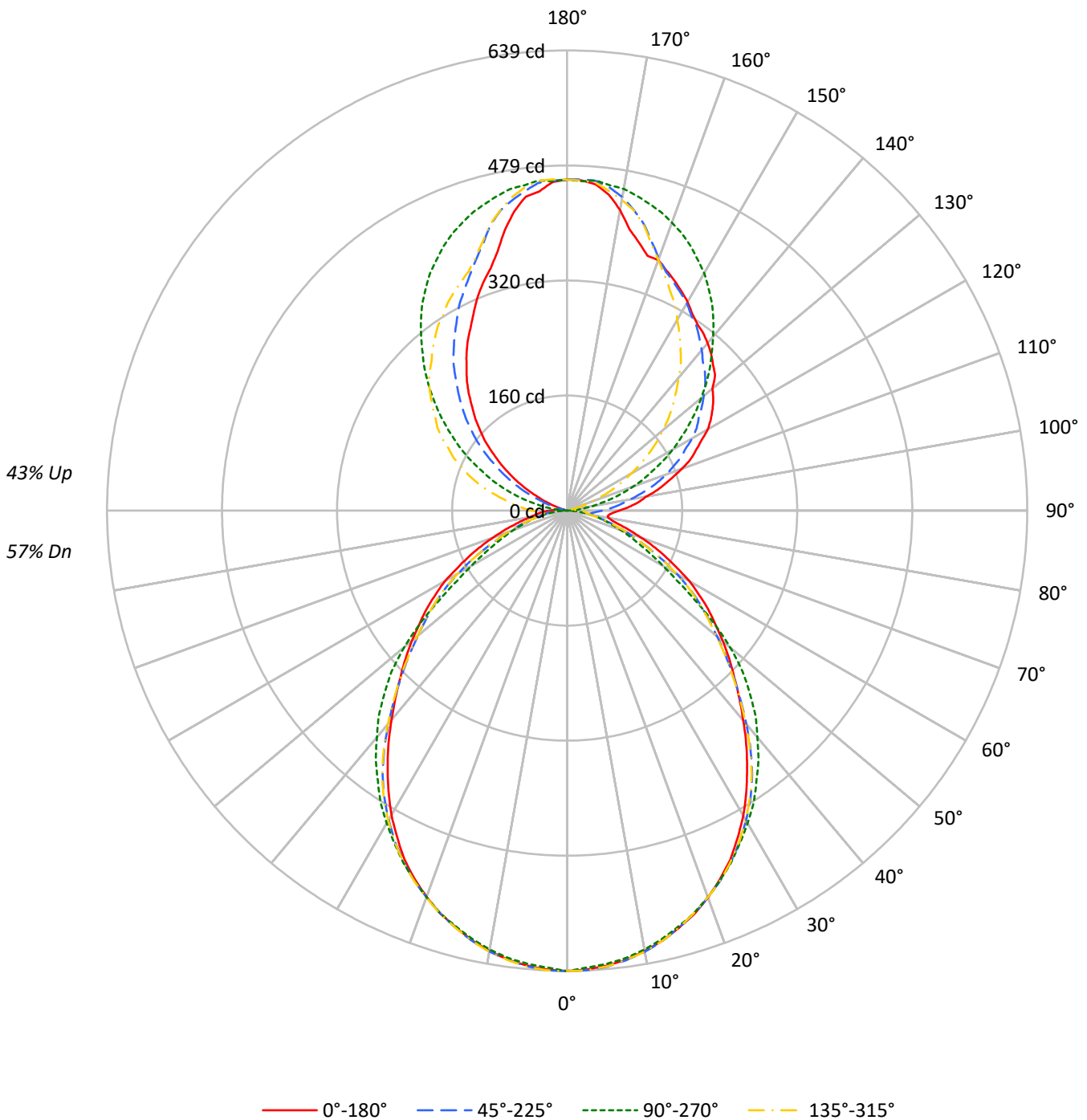
Lumens per Lamp: N/A
Luminaire Lumens: 2544.7 lumens
Efficiency: N/A
Efficacy: 88.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 28.785
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





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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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	57
1	100	95	91	88	93	89	86	83	77	74	72	66	64	62	56	54	53	48
2	91	84	78	73	85	78	73	69	68	64	60	58	55	53	49	47	46	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	42	39	35
4	77	66	58	52	71	62	55	49	54	49	44	47	42	39	40	37	34	31
5	70	59	51	45	65	55	48	43	48	43	38	42	38	34	36	33	30	27
6	65	53	45	39	60	50	43	37	44	38	34	38	34	30	33	29	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21
8	56	44	36	31	52	41	34	29	37	31	27	32	27	24	28	24	22	19
9	52	40	33	28	49	38	31	26	34	28	24	30	25	22	26	22	20	17
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	8259	8259	8259	8259
5°	8077	7531	8077	7531
10°	7856	6901	7856	6901
15°	7595	6304	7584	6304
20°	7306	5754	7293	5754
25°	6954	5239	6942	5239
30°	6514	4739	6497	4739
35°	5994	4251	5979	4251
40°	5461	3768	5441	3768
45°	4963	3274	4949	3274
50°	4544	2711	4528	2711
55°	4151	2006	4141	2006
60°	3725	1455	3717	1455
65°	3165	1078	3165	1078
70°	2604	802	2611	802
75°	2097	567	2123	567
80°	1978	370	1770	370
85°	2604	161	1683	161



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.1	2.4
10°-20°	168.9	6.6
20°-30°	247.0	9.7
30°-40°	278.7	11.0
40°-50°	258.7	10.2
50°-60°	203.2	8.0
60°-70°	128.4	5.0
70°-80°	63.9	2.5
80°-90°	35.0	1.4
90°-100°	40.5	1.6
100°-110°	71.2	2.8
110°-120°	122.2	4.8
120°-130°	165.8	6.5
130°-140°	189.1	7.4
140°-150°	188.9	7.4
150°-160°	164.5	6.5
160°-170°	115.6	4.5
170°-180°	43.0	1.7
0°-30°	476.0	18.7
0°-40°	754.7	29.7
0°-60°	1216.6	47.8
0°-90°	1443.9	56.7
90°-120°	233.9	9.2
90°-150°	777.7	30.6
90°-180°	1101.0	43.3
0°-180°	2544.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	639	639	639	639	639	
5°	634	632	634	632	634	60
15°	600	598	599	598	600	169
25°	535	539	534	539	535	246
35°	436	458	434	458	436	272
45°	328	358	327	358	328	254
55°	239	216	239	216	239	213
65°	150	111	150	111	150	149
75°	75	54	76	54	75	83
85°	59	14	38	14	59	48
90°	72	0	24	0	72	40
95°	92	13	16	13	92	79
105°	140	65	3	65	140	148
115°	197	131	46	131	197	196
125°	247	206	112	206	247	220
135°	286	280	180	280	286	221
145°	316	351	243	351	316	199
155°	352	405	306	405	352	163
165°	385	441	372	441	385	109
175°	455	460	445	460	455	42
180°	460	460	460	460	460	



TEST NUMBER: P392475

CATALOG NUMBER: MWL-2-13-17-UNV-L930-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	639.4	639.4	639.4	639.4	639.4	639.4	639.4	639.4	639.4	639.4	639.4
2.5°	637.7	638.3	639.0	636.7	635.1	636.5	639.0	638.3	637.9	638.3	639.0
5°	634.3	635.0	635.6	633.2	631.6	633.2	635.3	635.0	634.3	635.0	635.3
7.5°	628.9	629.6	629.6	628.2	626.6	627.9	629.2	629.2	628.9	629.2	629.2
10°	621.0	622.2	622.2	620.5	618.9	620.2	621.8	621.5	621.0	621.5	621.8
12.5°	611.8	612.3	611.9	610.4	609.2	610.4	611.9	611.7	611.2	611.7	611.9
15°	599.7	600.0	599.6	598.8	597.7	598.5	599.4	599.4	598.8	599.4	599.4
17.5°	587.4	586.9	586.5	586.9	586.1	586.9	586.1	586.5	586.5	586.5	586.1
20°	571.8	572.3	571.7	572.1	571.0	571.9	571.4	571.7	570.8	571.7	571.4
22.5°	554.3	555.1	556.0	555.8	555.4	555.4	555.8	554.5	553.6	554.5	555.8
25°	535.3	536.1	538.3	538.5	539.0	538.2	537.6	535.2	534.4	535.2	537.6
27.5°	512.4	515.6	518.6	519.9	520.0	519.6	517.9	514.7	511.3	514.7	517.9
30°	489.3	491.8	496.7	501.4	501.2	500.7	495.7	490.8	488.0	490.8	495.7
32.5°	463.0	466.3	473.7	480.0	481.7	479.3	472.7	465.0	461.7	465.0	472.7
35°	435.6	437.2	447.9	456.1	458.4	455.1	446.9	436.2	434.5	436.2	446.9
37.5°	408.5	407.6	418.3	433.1	436.6	432.1	417.3	406.6	407.4	406.6	417.3
40°	380.5	378.8	387.1	406.4	411.0	405.8	385.7	377.5	379.1	377.5	385.7
42.5°	354.1	352.6	356.3	378.5	387.2	377.8	355.3	351.2	352.8	351.2	355.3
45°	328.3	325.9	326.7	346.5	358.5	345.8	325.3	324.9	327.4	324.9	325.3
47.5°	305.4	301.2	298.8	313.2	330.5	312.9	297.4	300.3	304.3	300.3	297.4
50°	282.3	278.2	271.6	282.0	295.7	281.3	270.3	276.9	281.3	276.9	270.3
52.5°	259.3	256.8	247.4	252.4	257.0	251.7	246.5	255.5	258.3	255.5	246.5
55°	239.2	236.0	224.4	222.5	216.3	221.8	223.5	234.9	238.6	234.9	223.5
57.5°	217.0	215.4	201.5	192.0	181.0	191.4	200.4	214.4	216.3	214.4	200.4
60°	196.2	192.0	175.6	162.1	153.9	161.7	175.0	191.4	195.8	191.4	175.0
62.5°	171.5	169.1	150.9	134.2	130.6	133.8	150.3	168.4	171.2	168.4	150.3
65°	149.8	144.8	126.8	112.0	110.9	111.6	126.4	144.5	149.8	144.5	126.4
67.5°	129.3	121.0	105.4	92.7	93.6	92.7	105.0	120.7	129.3	120.7	105.0
70°	108.4	99.3	87.0	76.3	79.6	76.3	87.0	99.7	108.7	99.7	87.0
72.5°	91.1	80.4	70.5	62.3	65.2	62.0	70.5	80.7	91.7	80.7	70.5
75°	74.7	63.9	55.4	49.7	53.8	49.7	55.7	64.3	75.6	64.3	55.7
77.5°	64.0	53.8	42.3	39.8	43.1	39.8	42.6	52.7	62.8	52.7	42.6
80°	58.0	49.2	33.4	29.9	33.2	29.9	32.8	44.0	51.9	44.0	32.8
82.5°	56.8	50.5	32.3	20.9	22.5	20.9	28.4	39.0	44.5	39.0	28.4
85°	59.4	54.6	35.3	16.9	13.5	16.3	25.9	34.8	38.4	34.8	25.9
87.5°	64.5	62.4	40.6	18.5	3.3	14.0	22.1	31.3	31.2	31.3	22.1
90°	72.3	71.4	49.0	22.0	0.4	9.7	16.9	25.8	23.7	25.8	16.9
92.5°	82.4	81.0	58.6	27.1	5.2	4.8	14.2	21.0	18.9	21.0	14.2
95°	92.5	91.4	68.3	34.5	13.0	2.1	10.0	16.3	15.8	16.3	10.0
97.5°	102.7	101.0	77.6	45.3	23.0	3.9	6.1	12.0	12.0	12.0	6.1
100°	111.2	110.1	88.9	59.3	35.3	10.7	3.1	8.4	9.2	8.4	3.1
102.5°	126.4	120.9	102.2	72.6	48.6	20.1	5.6	4.3	5.9	4.3	5.6
105°	139.5	134.9	118.1	87.3	64.6	33.5	13.5	4.7	3.1	4.7	13.5
107.5°	153.4	150.1	132.3	101.5	80.8	48.1	24.5	12.9	8.3	12.9	24.5
110°	169.6	165.6	146.3	115.9	97.6	63.7	37.1	23.2	18.0	23.2	37.1



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CATALOG NUMBER: MWL-2-13-17-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	185.2	182.2	159.3	130.8	115.2	80.5	52.7	36.1	31.3	36.1	52.7
115°	197.1	195.5	174.2	144.6	131.4	99.7	69.8	51.4	45.5	51.4	69.8
117.5°	209.7	209.4	185.2	158.9	150.7	116.8	85.7	66.6	60.4	66.6	85.7
120°	225.6	223.0	200.3	173.1	169.2	134.9	103.2	84.1	77.9	84.1	103.2
122.5°	236.6	235.0	213.3	186.8	186.8	153.4	120.0	100.9	94.5	100.9	120.0
125°	246.6	246.0	223.0	200.3	205.5	170.6	138.8	119.4	112.2	119.4	138.8
127.5°	255.8	256.8	235.6	215.2	224.7	188.0	157.3	135.9	128.4	135.9	157.3
130°	263.4	266.8	247.6	228.8	242.8	207.2	173.8	152.4	147.6	152.4	173.8
132.5°	278.7	276.8	259.9	242.8	262.2	224.7	191.3	169.0	163.4	169.0	191.3
135°	286.5	287.1	270.7	254.7	280.4	242.1	207.8	185.8	180.3	185.8	207.8
137.5°	295.8	294.0	279.0	269.3	297.2	259.0	224.0	203.6	194.9	203.6	224.0
140°	303.5	303.2	290.8	282.3	315.4	275.5	241.3	220.6	212.6	220.6	241.3
142.5°	310.6	312.6	301.8	296.6	333.4	293.0	259.1	236.4	228.7	236.4	259.1
145°	315.5	319.7	312.9	315.2	350.6	313.2	274.6	251.7	243.3	251.7	274.6
147.5°	323.6	329.1	321.0	327.9	365.5	330.4	290.3	267.6	260.1	267.6	290.3
150°	334.6	337.2	332.4	345.2	380.8	349.6	306.1	282.8	275.3	282.8	306.1
152.5°	343.4	346.6	341.1	364.4	392.7	367.0	323.6	297.7	289.0	297.7	323.6
155°	352.5	353.8	349.8	382.8	405.4	384.2	337.6	314.3	305.8	314.3	337.6
157.5°	360.8	363.5	358.9	396.8	416.4	399.0	353.4	330.7	323.2	330.7	353.4
160°	370.0	370.0	372.5	412.2	425.5	411.2	370.3	348.9	338.6	348.9	370.3
162.5°	371.0	377.0	391.0	423.5	434.3	422.6	388.4	361.8	352.7	361.8	388.4
165°	385.1	390.7	411.7	433.6	441.0	432.6	410.8	383.2	372.5	383.2	410.8
167.5°	400.0	411.7	427.7	444.9	447.5	441.9	427.0	408.8	399.0	408.8	427.0
170°	423.5	434.4	441.9	449.9	453.5	450.3	437.8	429.2	422.2	429.2	437.8
172.5°	442.6	449.1	452.3	457.7	455.5	454.2	447.5	443.0	439.7	443.0	447.5
175°	454.6	455.9	459.6	458.0	460.0	456.5	456.8	458.1	444.9	458.1	456.8
177.5°	458.8	461.1	460.3	457.4	457.7	457.1	458.3	458.8	456.8	458.8	458.3
180°	459.6	459.6	459.6	459.6	459.6	459.6	459.6	459.6	459.6	459.6	459.6



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CATALOG NUMBER: MWL-2-13-17-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	639.4	639.4	639.4	639.4	639.4	639.4
2.5°	636.5	635.1	636.7	639.0	638.3	637.7
5°	633.2	631.6	633.2	635.6	635.0	634.3
7.5°	627.9	626.6	628.2	629.6	629.6	628.9
10°	620.2	618.9	620.5	622.2	622.2	621.0
12.5°	610.4	609.2	610.4	611.9	612.3	611.8
15°	598.5	597.7	598.8	599.6	600.0	599.7
17.5°	586.9	586.1	586.9	586.5	586.9	587.4
20°	571.9	571.0	572.1	571.7	572.3	571.8
22.5°	555.4	555.4	555.8	556.0	555.1	554.3
25°	538.2	539.0	538.5	538.3	536.1	535.3
27.5°	519.6	520.0	519.9	518.6	515.6	512.4
30°	500.7	501.2	501.4	496.7	491.8	489.3
32.5°	479.3	481.7	480.0	473.7	466.3	463.0
35°	455.1	458.4	456.1	447.9	437.2	435.6
37.5°	432.1	436.6	433.1	418.3	407.6	408.5
40°	405.8	411.0	406.4	387.1	378.8	380.5
42.5°	377.8	387.2	378.5	356.3	352.6	354.1
45°	345.8	358.5	346.5	326.7	325.9	328.3
47.5°	312.9	330.5	313.2	298.8	301.2	305.4
50°	281.3	295.7	282.0	271.6	278.2	282.3
52.5°	251.7	257.0	252.4	247.4	256.8	259.3
55°	221.8	216.3	222.5	224.4	236.0	239.2
57.5°	191.4	181.0	192.0	201.5	215.4	217.0
60°	161.7	153.9	162.1	175.6	192.0	196.2
62.5°	133.8	130.6	134.2	150.9	169.1	171.5
65°	111.6	110.9	112.0	126.8	144.8	149.8
67.5°	92.7	93.6	92.7	105.4	121.0	129.3
70°	76.3	79.6	76.3	87.0	99.3	108.4
72.5°	62.0	65.2	62.3	70.5	80.4	91.1
75°	49.7	53.8	49.7	55.4	63.9	74.7
77.5°	39.8	43.1	39.8	42.3	53.8	64.0
80°	29.9	33.2	29.9	33.4	49.2	58.0
82.5°	20.9	22.5	20.9	32.3	50.5	56.8
85°	16.3	13.5	16.9	35.3	54.6	59.4
87.5°	14.0	3.3	18.5	40.6	62.4	64.5
90°	9.7	0.4	22.0	49.0	71.4	72.3
92.5°	4.8	5.2	27.1	58.6	81.0	82.4
95°	2.1	13.0	34.5	68.3	91.4	92.5
97.5°	3.9	23.0	45.3	77.6	101.0	102.7
100°	10.7	35.3	59.3	88.9	110.1	111.2
102.5°	20.1	48.6	72.6	102.2	120.9	126.4
105°	33.5	64.6	87.3	118.1	134.9	139.5
107.5°	48.1	80.8	101.5	132.3	150.1	153.4
110°	63.7	97.6	115.9	146.3	165.6	169.6



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CATALOG NUMBER: MWL-2-13-17-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	80.5	115.2	130.8	159.3	182.2	185.2
115°	99.7	131.4	144.6	174.2	195.5	197.1
117.5°	116.8	150.7	158.9	185.2	209.4	209.7
120°	134.9	169.2	173.1	200.3	223.0	225.6
122.5°	153.4	186.8	186.8	213.3	235.0	236.6
125°	170.6	205.5	200.3	223.0	246.0	246.6
127.5°	188.0	224.7	215.2	235.6	256.8	255.8
130°	207.2	242.8	228.8	247.6	266.8	263.4
132.5°	224.7	262.2	242.8	259.9	276.8	278.7
135°	242.1	280.4	254.7	270.7	287.1	286.5
137.5°	259.0	297.2	269.3	279.0	294.0	295.8
140°	275.5	315.4	282.3	290.8	303.2	303.5
142.5°	293.0	333.4	296.6	301.8	312.6	310.6
145°	313.2	350.6	315.2	312.9	319.7	315.5
147.5°	330.4	365.5	327.9	321.0	329.1	323.6
150°	349.6	380.8	345.2	332.4	337.2	334.6
152.5°	367.0	392.7	364.4	341.1	346.6	343.4
155°	384.2	405.4	382.8	349.8	353.8	352.5
157.5°	399.0	416.4	396.8	358.9	363.5	360.8
160°	411.2	425.5	412.2	372.5	370.0	370.0
162.5°	422.6	434.3	423.5	391.0	377.0	371.0
165°	432.6	441.0	433.6	411.7	390.7	385.1
167.5°	441.9	447.5	444.9	427.7	411.7	400.0
170°	450.3	453.5	449.9	441.9	434.4	423.5
172.5°	454.2	455.5	457.7	452.3	449.1	442.6
175°	456.5	460.0	458.0	459.6	455.9	454.6
177.5°	457.1	457.7	457.4	460.3	461.1	458.8
180°	459.6	459.6	459.6	459.6	459.6	459.6

(END OF REPORT)