

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: P392472

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

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392472
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-2-13-13-UNV-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

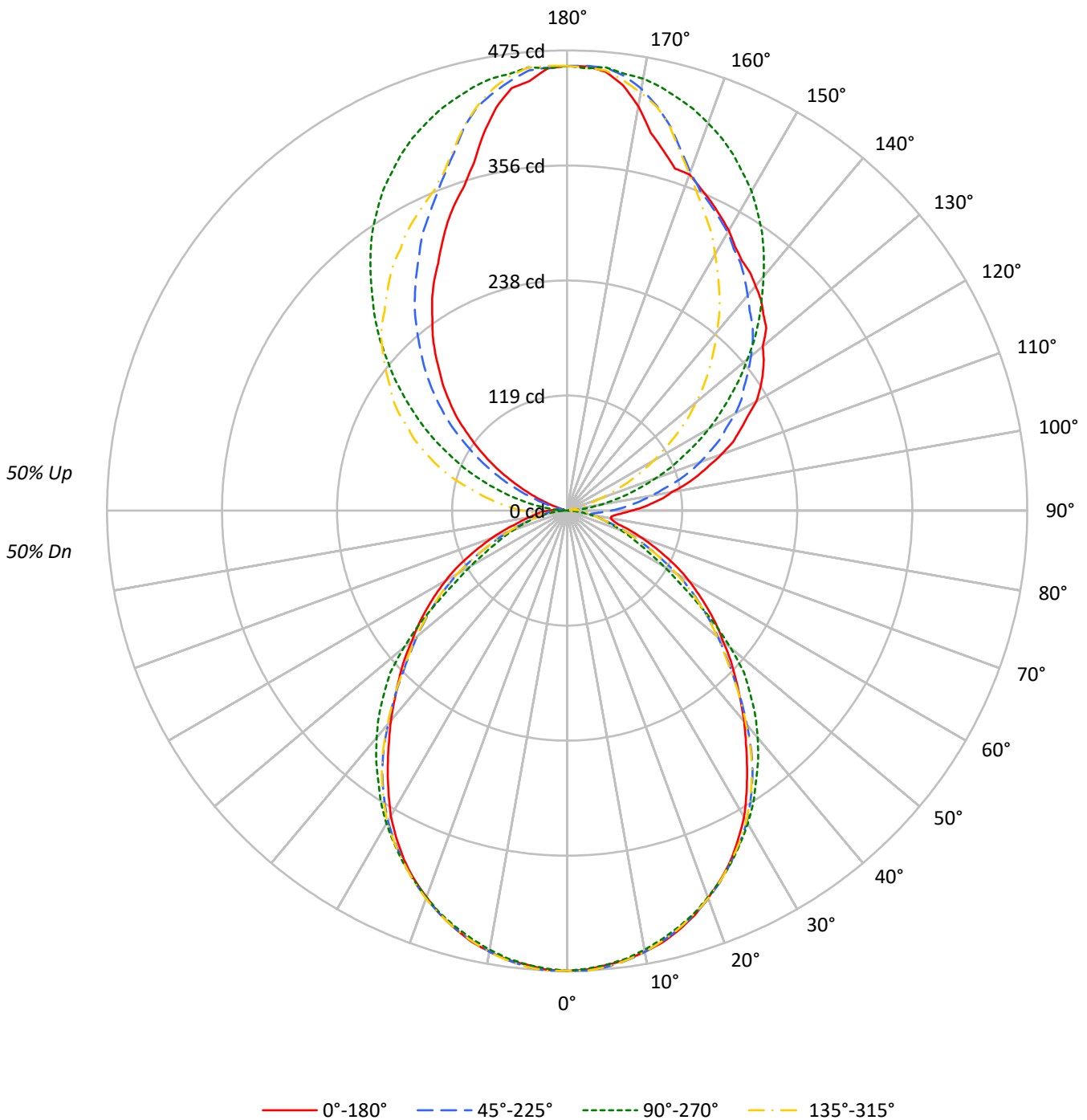
Lumens per Lamp: N/A
Luminaire Lumens: 2175.7 lumens
Efficiency: N/A
Efficacy: 90.5 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 24.038
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	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	36	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°	6137	6137	6137	6137
5°	5995	5610	5995	5610
10°	5850	5131	5850	5131
15°	5670	4691	5659	4691
20°	5437	4281	5425	4281
25°	5183	3897	5170	3897
30°	4862	3527	4845	3527
35°	4456	3153	4442	3153
40°	4080	2805	4062	2805
45°	3722	2440	3707	2440
50°	3381	2017	3364	2017
55°	3082	1496	3072	1496
60°	2756	1090	2749	1090
65°	2366	798	2366	798
70°	1972	595	1979	595
75°	1541	428	1569	428
80°	1558	270	1350	270
85°	2209	111	1284	111



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.7	2.1
10°-20°	125.8	5.8
20°-30°	183.9	8.5
30°-40°	207.5	9.5
40°-50°	192.9	8.9
50°-60°	151.5	7.0
60°-70°	96.0	4.4
70°-80°	47.8	2.2
80°-90°	28.3	1.3
90°-100°	38.1	1.8
100°-110°	70.8	3.3
110°-120°	122.2	5.6
120°-130°	165.8	7.6
130°-140°	189.1	8.7
140°-150°	188.5	8.7
150°-160°	164.1	7.5
160°-170°	115.5	5.3
170°-180°	43.0	2.0
0°-30°	354.4	16.3
0°-40°	561.9	25.8
0°-60°	906.3	41.7
0°-90°	1078.5	49.6
90°-120°	231.2	10.6
90°-150°	774.6	35.6
90°-180°	1097.0	50.4
0°-180°	2175.7	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	475	475	475	475	475	
5°	471	470	471	470	471	45
15°	448	445	447	445	448	126
25°	399	401	398	401	399	183
35°	324	340	323	340	324	203
45°	246	267	245	267	246	190
55°	178	161	177	161	178	159
65°	112	82	112	82	112	112
75°	55	41	56	41	55	62
85°	50	9	29	9	50	40
90°	66	0	18	0	66	37
95°	88	13	12	13	88	77
105°	140	64	3	64	140	147
115°	197	131	46	131	197	196
125°	247	206	112	206	247	220
135°	286	280	180	280	286	221
145°	315	351	242	351	315	198
155°	352	406	305	406	352	162
165°	384	441	372	441	384	109
175°	455	459	445	459	455	42
180°	459	459	459	459	459	



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

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	475.1	475.1	475.1	475.1	475.1	475.1	475.1	475.1	475.1	475.1	475.1
2.5°	474.1	474.8	475.4	474.0	473.2	473.8	475.4	474.8	474.4	474.8	475.4
5°	470.8	472.3	472.9	471.3	470.5	471.3	472.7	472.3	470.8	472.3	472.7
7.5°	467.8	468.5	468.5	467.2	466.4	466.8	468.2	468.2	467.8	468.2	468.2
10°	462.4	462.8	462.8	461.9	460.2	461.6	462.4	462.1	462.4	462.1	462.4
12.5°	456.5	456.2	455.0	454.2	453.0	454.2	455.0	455.5	455.8	455.5	455.0
15°	447.7	447.1	446.8	446.8	444.8	446.5	446.5	446.5	446.8	446.5	446.5
17.5°	437.9	437.3	436.9	436.6	435.8	436.6	436.6	436.9	436.9	436.9	436.6
20°	425.5	426.1	426.3	425.1	424.8	424.8	425.9	425.5	424.6	425.5	425.9
22.5°	413.0	413.0	413.9	414.4	413.2	414.1	413.6	412.3	412.3	412.3	413.6
25°	399.0	399.0	400.3	401.2	400.9	400.9	399.6	398.0	398.0	398.0	399.6
27.5°	382.5	383.3	386.3	387.6	387.0	387.2	385.7	382.3	381.5	382.3	385.7
30°	365.2	366.9	371.0	373.2	373.0	372.5	370.0	365.8	363.9	365.8	370.0
32.5°	344.7	347.2	352.9	357.5	357.7	356.9	351.9	345.9	343.4	345.9	351.9
35°	323.8	326.2	333.6	340.2	340.0	339.3	332.7	325.3	322.8	325.3	332.7
37.5°	303.2	304.0	312.3	322.2	323.9	321.1	311.3	303.1	302.3	303.1	311.3
40°	284.3	282.6	288.5	302.9	305.9	302.3	287.1	281.4	283.0	281.4	287.1
42.5°	264.6	262.1	265.9	281.5	287.7	280.9	264.9	260.8	263.3	260.8	264.9
45°	246.2	243.7	242.8	258.5	267.2	257.8	241.6	242.8	245.2	242.8	241.6
47.5°	228.9	224.8	222.3	234.3	247.5	234.0	221.0	223.8	228.0	223.8	221.0
50°	210.0	208.3	203.4	210.5	220.0	209.8	202.1	207.0	209.0	207.0	202.1
52.5°	194.4	191.9	185.0	188.3	192.0	187.6	184.0	190.6	193.4	190.6	184.0
55°	177.6	175.9	166.9	166.6	161.3	165.9	165.9	175.0	177.0	175.0	165.9
57.5°	161.1	159.5	149.7	143.5	135.0	142.9	148.6	158.5	160.5	158.5	148.6
60°	145.2	143.5	131.2	121.9	115.3	121.5	130.6	142.9	144.8	142.9	130.6
62.5°	129.6	126.3	112.4	100.5	96.9	100.1	111.6	125.6	129.3	125.6	111.6
65°	112.0	107.9	94.7	84.0	82.1	83.7	94.4	107.5	112.0	107.5	94.4
67.5°	96.3	90.6	79.9	69.7	70.5	69.7	79.6	90.3	96.3	90.3	79.6
70°	82.1	74.7	64.8	57.4	59.0	57.4	64.8	75.0	82.4	75.0	64.8
72.5°	68.1	59.9	52.5	46.7	48.9	46.4	52.5	60.2	68.8	60.2	52.5
75°	54.9	48.3	40.6	37.3	40.6	37.3	40.9	48.7	55.9	48.7	40.9
77.5°	48.4	40.6	31.6	29.1	32.4	29.1	31.9	39.6	47.2	39.6	31.9
80°	45.7	38.6	25.2	22.5	24.2	22.5	24.5	33.4	39.6	33.4	24.5
82.5°	46.1	40.7	24.9	15.9	16.7	15.9	21.0	29.1	33.8	29.1	21.0
85°	50.4	47.2	29.6	12.9	9.3	12.2	20.2	27.4	29.3	27.4	20.2
87.5°	57.9	55.8	36.5	15.2	2.5	10.7	18.1	24.7	24.6	24.7	18.1
90°	66.5	64.9	45.7	19.5	0.4	7.2	13.6	19.3	18.0	19.3	13.6
92.5°	78.3	76.1	55.3	26.3	5.2	4.0	10.8	16.1	14.8	16.1	10.8
95°	88.5	87.3	65.9	33.7	13.0	1.3	7.6	12.2	11.7	12.2	7.6
97.5°	100.2	97.7	76.8	45.3	23.0	3.9	5.3	8.7	9.5	8.7	5.3
100°	109.6	108.5	88.9	59.3	35.3	10.7	3.1	6.8	7.6	6.8	3.1
102.5°	125.6	120.9	101.3	72.6	48.6	20.1	4.8	4.3	5.1	4.3	4.8
105°	139.5	134.9	117.3	86.5	63.8	32.8	12.7	4.7	3.1	4.7	12.7
107.5°	153.4	150.1	132.3	100.7	80.0	47.3	24.5	12.9	8.3	12.9	24.5
110°	169.6	165.7	146.3	115.9	96.9	63.7	37.1	23.2	18.1	23.2	37.1



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CATALOG NUMBER: MWL-2-13-13-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	195.6	174.2	144.7	131.4	99.7	69.8	51.4	45.5	51.4	69.8
117.5°	209.7	209.4	185.2	158.9	150.8	116.8	85.7	66.6	60.4	66.6	85.7
120°	225.6	223.0	200.4	173.2	169.3	134.9	103.2	84.1	77.9	84.1	103.2
122.5°	236.7	235.1	213.3	186.8	186.8	153.4	120.0	100.9	94.5	100.9	120.0
125°	246.6	246.1	223.0	200.4	205.6	170.6	138.8	119.4	112.3	119.4	138.8
127.5°	255.8	256.8	235.6	215.3	224.7	188.1	157.3	135.9	128.5	135.9	157.3
130°	263.5	266.8	247.7	228.9	242.8	207.2	173.8	152.4	147.6	152.4	173.8
132.5°	278.8	276.8	260.0	242.8	262.3	224.7	191.3	169.0	163.4	169.0	191.3
135°	286.5	287.2	270.7	254.8	280.4	242.1	207.9	185.8	180.3	185.8	207.9
137.5°	295.9	294.0	279.0	269.3	297.3	259.0	224.1	203.6	194.9	203.6	224.1
140°	302.7	302.5	290.0	282.4	315.4	275.5	240.6	219.8	211.8	219.8	240.6
142.5°	309.9	311.8	301.1	296.6	333.5	293.0	258.3	235.6	228.0	235.6	258.3
145°	314.8	318.9	312.1	314.4	350.7	312.4	273.9	250.9	242.5	250.9	273.9
147.5°	322.8	328.3	320.2	327.1	365.6	329.7	289.5	266.8	259.3	266.8	289.5
150°	333.8	336.4	331.6	344.5	380.8	348.8	305.4	282.0	274.5	282.0	305.4
152.5°	342.6	345.9	340.3	363.6	392.8	366.2	322.8	296.9	288.2	296.9	322.8
155°	351.7	353.0	349.0	382.0	405.5	383.4	336.8	313.5	305.0	313.5	336.8
157.5°	360.0	362.7	358.2	396.0	416.5	398.3	352.6	329.9	322.4	329.9	352.6
160°	369.2	369.2	371.7	412.3	425.5	411.3	369.5	348.1	337.8	348.1	369.5
162.5°	370.2	376.2	390.2	423.6	434.3	422.6	387.6	361.0	352.0	361.0	387.6
165°	384.4	389.9	410.9	433.6	441.0	432.7	410.0	382.4	371.7	382.4	410.0
167.5°	399.3	410.9	427.8	445.0	447.6	442.0	427.1	408.1	398.3	408.1	427.1
170°	423.6	433.6	442.0	449.1	452.8	449.5	437.9	428.5	422.3	428.5	437.9
172.5°	442.7	449.1	452.4	456.9	454.7	453.4	447.6	443.0	439.8	443.0	447.6
175°	454.7	456.0	458.9	457.2	459.2	455.7	456.0	458.2	445.0	458.2	456.0
177.5°	458.9	461.2	459.5	456.6	456.9	456.4	457.6	458.9	456.9	458.9	457.6
180°	458.9	458.9	458.9	458.9	458.9	458.9	458.9	458.9	458.9	458.9	458.9



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

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	475.1	475.1	475.1	475.1	475.1	475.1
2.5°	473.8	473.2	474.0	475.4	474.8	474.1
5°	471.3	470.5	471.3	472.9	472.3	470.8
7.5°	466.8	466.4	467.2	468.5	468.5	467.8
10°	461.6	460.2	461.9	462.8	462.8	462.4
12.5°	454.2	453.0	454.2	455.0	456.2	456.5
15°	446.5	444.8	446.8	446.8	447.1	447.7
17.5°	436.6	435.8	436.6	436.9	437.3	437.9
20°	424.8	424.8	425.1	426.3	426.1	425.5
22.5°	414.1	413.2	414.4	413.9	413.0	413.0
25°	400.9	400.9	401.2	400.3	399.0	399.0
27.5°	387.2	387.0	387.6	386.3	383.3	382.5
30°	372.5	373.0	373.2	371.0	366.9	365.2
32.5°	356.9	357.7	357.5	352.9	347.2	344.7
35°	339.3	340.0	340.2	333.6	326.2	323.8
37.5°	321.1	323.9	322.2	312.3	304.0	303.2
40°	302.3	305.9	302.9	288.5	282.6	284.3
42.5°	280.9	287.7	281.5	265.9	262.1	264.6
45°	257.8	267.2	258.5	242.8	243.7	246.2
47.5°	234.0	247.5	234.3	222.3	224.8	228.9
50°	209.8	220.0	210.5	203.4	208.3	210.0
52.5°	187.6	192.0	188.3	185.0	191.9	194.4
55°	165.9	161.3	166.6	166.9	175.9	177.6
57.5°	142.9	135.0	143.5	149.7	159.5	161.1
60°	121.5	115.3	121.9	131.2	143.5	145.2
62.5°	100.1	96.9	100.5	112.4	126.3	129.6
65°	83.7	82.1	84.0	94.7	107.9	112.0
67.5°	69.7	70.5	69.7	79.9	90.6	96.3
70°	57.4	59.0	57.4	64.8	74.7	82.1
72.5°	46.4	48.9	46.7	52.5	59.9	68.1
75°	37.3	40.6	37.3	40.6	48.3	54.9
77.5°	29.1	32.4	29.1	31.6	40.6	48.4
80°	22.5	24.2	22.5	25.2	38.6	45.7
82.5°	15.9	16.7	15.9	24.9	40.7	46.1
85°	12.2	9.3	12.9	29.6	47.2	50.4
87.5°	10.7	2.5	15.2	36.5	55.8	57.9
90°	7.2	0.4	19.5	45.7	64.9	66.5
92.5°	4.0	5.2	26.3	55.3	76.1	78.3
95°	1.3	13.0	33.7	65.9	87.3	88.5
97.5°	3.9	23.0	45.3	76.8	97.7	100.2
100°	10.7	35.3	59.3	88.9	108.5	109.6
102.5°	20.1	48.6	72.6	101.3	120.9	125.6
105°	32.8	63.8	86.5	117.3	134.9	139.5
107.5°	47.3	80.0	100.7	132.3	150.1	153.4
110°	63.7	96.9	115.9	146.3	165.7	169.6



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CATALOG NUMBER: MWL-2-13-13-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	144.7	174.2	195.6	197.1
117.5°	116.8	150.8	158.9	185.2	209.4	209.7
120°	134.9	169.3	173.2	200.4	223.0	225.6
122.5°	153.4	186.8	186.8	213.3	235.1	236.7
125°	170.6	205.6	200.4	223.0	246.1	246.6
127.5°	188.1	224.7	215.3	235.6	256.8	255.8
130°	207.2	242.8	228.9	247.7	266.8	263.5
132.5°	224.7	262.3	242.8	260.0	276.8	278.8
135°	242.1	280.4	254.8	270.7	287.2	286.5
137.5°	259.0	297.3	269.3	279.0	294.0	295.9
140°	275.5	315.4	282.4	290.0	302.5	302.7
142.5°	293.0	333.5	296.6	301.1	311.8	309.9
145°	312.4	350.7	314.4	312.1	318.9	314.8
147.5°	329.7	365.6	327.1	320.2	328.3	322.8
150°	348.8	380.8	344.5	331.6	336.4	333.8
152.5°	366.2	392.8	363.6	340.3	345.9	342.6
155°	383.4	405.5	382.0	349.0	353.0	351.7
157.5°	398.3	416.5	396.0	358.2	362.7	360.0
160°	411.3	425.5	412.3	371.7	369.2	369.2
162.5°	422.6	434.3	423.6	390.2	376.2	370.2
165°	432.7	441.0	433.6	410.9	389.9	384.4
167.5°	442.0	447.6	445.0	427.8	410.9	399.3
170°	449.5	452.8	449.1	442.0	433.6	423.6
172.5°	453.4	454.7	456.9	452.4	449.1	442.7
175°	455.7	459.2	457.2	458.9	456.0	454.7
177.5°	456.4	456.9	456.6	459.5	461.2	458.9
180°	458.9	458.9	458.9	458.9	458.9	458.9

(END OF REPORT)