

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: P382208

Luminaire Tested: **MWL-2-18-17-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382208
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-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

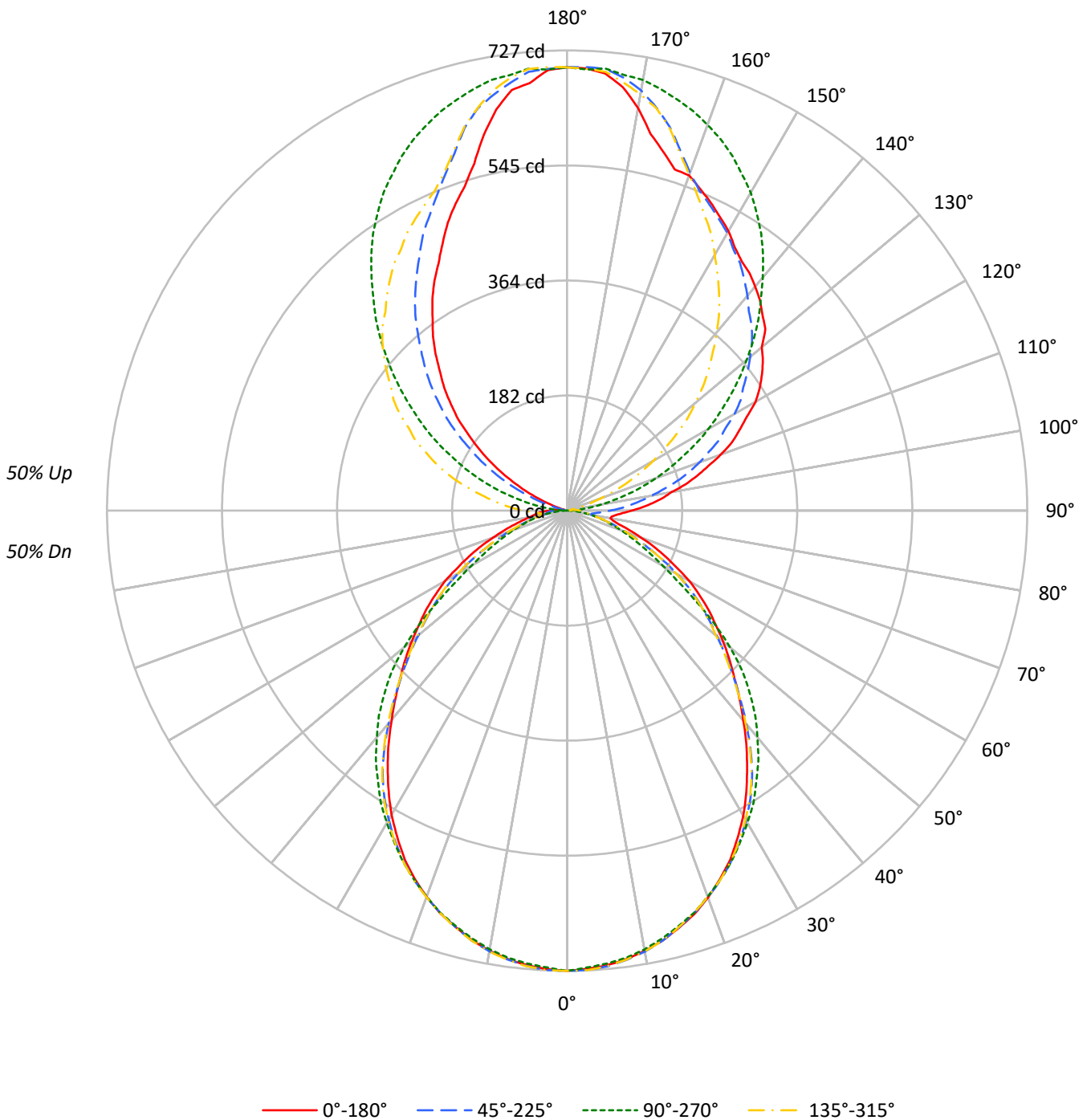
Lumens per Lamp: N/A
Luminaire Lumens: 3319.0 lumens
Efficiency: N/A
Efficacy: 100.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 33.2
Input Voltage (V): NR
Input Current (A_{in}): 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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CATALOG NUMBER: MWL-2-18-17-UNV-L830-EDD

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	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°	9393	9393	9393	9393
5°	9181	8564	9181	8564
10°	8934	7847	8934	7847
15°	8643	7166	8625	7166
20°	8314	6541	8295	6541
25°	7911	5955	7893	5955
30°	7413	5387	7386	5387
35°	6820	4834	6799	4834
40°	6215	4286	6187	4286
45°	5649	3724	5627	3724
50°	5174	3083	5150	3083
55°	4726	2283	4710	2283
60°	4239	1657	4229	1657
65°	3602	1227	3602	1227
70°	2964	914	2973	914
75°	2389	645	2429	645
80°	2366	421	2046	421
85°	3414	184	2007	184



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.4	2.1
10°-20°	192.0	5.8
20°-30°	280.9	8.5
30°-40°	317.0	9.6
40°-50°	294.3	8.9
50°-60°	231.2	7.0
60°-70°	146.2	4.4
70°-80°	72.9	2.2
80°-90°	43.2	1.3
90°-100°	58.2	1.8
100°-110°	108.1	3.3
110°-120°	186.0	5.6
120°-130°	252.6	7.6
130°-140°	288.1	8.7
140°-150°	287.7	8.7
150°-160°	250.5	7.5
160°-170°	176.1	5.3
170°-180°	65.6	2.0
0°-30°	541.3	16.3
0°-40°	858.3	25.9
0°-60°	1383.8	41.7
0°-90°	1646.1	49.6
90°-120°	352.4	10.6
90°-150°	1180.7	35.6
90°-180°	1673.0	50.4
0°-180°	3319.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	727	727	727	727	727	
5°	721	718	721	718	721	68
15°	682	680	681	680	682	192
25°	609	613	608	613	609	279
35°	496	521	494	521	496	310
45°	374	408	372	408	374	290
55°	272	246	271	246	272	243
65°	170	126	170	126	170	170
75°	85	61	86	61	85	95
85°	78	15	46	15	78	62
90°	102	0	28	0	102	56
95°	135	20	18	20	135	117
105°	212	98	4	98	212	224
115°	300	200	69	200	300	298
125°	376	313	171	313	376	336
135°	437	427	274	427	437	337
145°	481	534	370	534	481	303
155°	537	618	466	618	537	248
165°	587	672	568	672	587	166
175°	693	701	678	701	693	65
180°	700	700	700	700	700	



TEST NUMBER: P382208

CATALOG NUMBER: MWL-2-18-17-UNV-L830-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	727.2	727.2	727.2	727.2	727.2	727.2	727.2	727.2	727.2	727.2	727.2
2.5°	724.7	725.8	726.7	724.5	722.6	723.9	726.7	725.8	725.2	725.8	726.7
5°	721.0	722.0	723.0	720.2	718.3	720.2	722.5	722.0	721.0	722.0	722.5
7.5°	714.9	716.0	716.0	714.6	712.7	714.1	715.5	715.5	714.9	715.5	715.5
10°	706.2	707.6	707.6	705.7	703.8	705.2	707.1	706.5	706.2	706.5	707.1
12.5°	695.9	696.4	695.9	694.0	692.5	694.0	695.9	695.3	695.0	695.3	695.9
15°	682.4	682.4	681.9	681.0	679.5	680.4	681.3	681.3	681.0	681.3	681.3
17.5°	668.4	667.4	666.9	667.3	666.4	667.3	666.4	666.9	666.9	666.9	666.4
20°	650.7	651.1	650.1	650.5	649.1	650.0	649.6	650.1	649.2	650.1	649.6
22.5°	630.5	631.5	632.4	631.8	631.4	631.4	631.8	630.5	629.6	630.5	631.8
25°	609.0	610.0	612.3	612.2	612.7	611.8	611.3	608.5	607.6	608.5	611.3
27.5°	582.9	586.6	589.9	591.3	591.2	590.7	588.9	585.1	581.4	585.1	588.9
30°	556.8	559.6	565.2	570.3	569.7	569.3	563.7	558.1	554.8	558.1	563.7
32.5°	526.9	530.6	539.0	546.0	547.8	545.0	537.5	528.6	524.9	528.6	537.5
35°	495.6	497.5	509.6	518.9	521.2	517.4	508.1	496.0	494.1	496.0	508.1
37.5°	464.8	463.8	476.0	492.8	496.4	491.3	474.5	462.3	463.3	462.3	474.5
40°	433.0	431.2	440.5	462.4	467.5	461.4	438.5	429.2	431.1	429.2	438.5
42.5°	403.1	401.3	405.5	430.7	440.4	429.7	404.0	399.3	401.2	399.3	404.0
45°	373.7	370.9	371.9	394.3	407.7	393.2	369.9	369.4	372.2	369.4	369.9
47.5°	347.6	342.9	340.1	356.4	376.0	355.9	338.1	341.4	346.1	341.4	338.1
50°	321.4	316.8	309.3	320.9	336.3	319.9	307.3	314.8	319.9	314.8	307.3
52.5°	295.3	292.5	281.6	287.2	292.4	286.3	280.2	290.5	293.8	290.5	280.2
55°	272.3	268.6	255.5	253.2	246.2	252.2	254.1	267.2	271.4	267.2	254.1
57.5°	247.1	245.2	229.3	218.6	206.0	217.7	227.9	243.8	246.2	243.8	227.9
60°	223.3	218.6	199.9	184.5	175.2	184.1	199.0	217.7	222.8	217.7	199.0
62.5°	195.3	192.5	171.9	152.8	148.6	152.3	171.0	191.5	194.8	191.5	171.0
65°	170.5	164.9	144.4	127.6	126.2	127.1	143.9	164.4	170.5	164.4	143.9
67.5°	147.2	137.8	120.1	105.6	106.6	105.6	119.6	137.4	147.2	137.4	119.6
70°	123.4	113.1	99.1	86.9	90.7	86.9	99.1	113.6	123.8	113.6	99.1
72.5°	103.7	91.6	80.4	71.1	74.2	70.5	80.4	92.1	104.7	92.1	80.4
75°	85.1	72.9	63.0	56.5	61.2	56.5	63.6	73.4	86.5	73.4	63.6
77.5°	74.1	61.8	48.1	45.3	49.0	45.3	48.7	60.3	72.1	60.3	48.7
80°	69.4	58.5	38.4	34.1	37.8	34.1	37.4	50.5	60.0	50.5	37.4
82.5°	71.0	62.8	38.8	23.8	25.7	23.8	32.8	45.0	52.2	45.0	32.8
85°	77.9	71.1	44.9	19.7	15.4	18.8	30.6	40.9	45.8	40.9	30.6
87.5°	88.2	84.7	54.5	23.4	3.7	16.4	26.4	37.3	37.3	37.3	26.4
90°	101.8	99.7	68.6	30.1	0.5	11.3	19.7	30.1	27.7	30.1	19.7
92.5°	118.9	115.8	84.1	39.8	7.9	5.7	16.4	24.4	22.0	24.4	16.4
95°	135.3	133.4	100.7	52.3	19.8	2.9	11.8	18.8	18.3	18.8	11.8
97.5°	152.4	150.0	116.8	69.2	35.1	5.9	7.7	14.1	14.1	14.1	7.7
100°	167.1	165.6	135.3	90.4	53.9	16.3	4.4	10.5	11.4	10.5	4.4
102.5°	191.4	183.7	155.6	110.7	74.1	30.6	8.3	5.8	7.7	5.8	8.3
105°	212.4	205.4	179.8	132.8	98.2	50.8	20.2	6.8	4.4	6.8	20.2
107.5°	233.6	228.6	201.5	154.5	123.0	73.0	37.0	19.2	12.3	19.2	37.0
110°	258.3	252.3	222.7	176.3	148.7	96.7	56.2	35.0	27.1	35.0	56.2



TEST NUMBER: P382208

CATALOG NUMBER: MWL-2-18-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	282.0	277.5	242.5	199.0	175.3	122.4	79.9	54.8	47.3	54.8	79.9
115°	300.2	297.8	265.2	220.3	200.0	151.6	106.2	78.0	69.1	78.0	106.2
117.5°	319.6	319.0	282.0	242.0	229.6	177.8	130.4	101.2	91.8	101.2	130.4
120°	343.7	339.8	305.2	263.7	257.8	205.4	157.0	127.8	118.5	127.8	157.0
122.5°	360.6	358.0	325.0	284.4	284.4	233.6	182.8	153.5	143.7	153.5	182.8
125°	375.9	374.8	339.8	305.2	313.1	259.8	211.3	181.7	170.9	181.7	211.3
127.5°	389.7	391.2	359.1	328.0	342.2	286.4	239.5	206.9	195.5	206.9	239.5
130°	401.5	406.5	377.4	348.7	369.9	315.5	264.7	232.2	224.7	232.2	264.7
132.5°	424.7	421.8	396.1	369.9	399.6	342.2	291.4	257.3	248.9	257.3	291.4
135°	436.6	437.6	412.4	388.2	427.2	369.0	316.6	283.0	274.5	283.0	316.6
137.5°	450.9	448.0	425.3	410.4	452.9	394.6	341.2	310.1	296.8	310.1	341.2
140°	462.2	461.8	443.0	430.2	480.6	419.9	367.4	335.8	323.4	335.8	367.4
142.5°	473.1	476.1	459.7	451.9	508.2	446.5	394.5	360.0	348.1	360.0	394.5
145°	480.6	486.9	476.5	480.0	534.4	477.1	418.3	383.2	370.4	383.2	418.3
147.5°	492.9	501.3	488.9	499.3	557.1	503.2	442.0	407.4	396.0	407.4	442.0
150°	509.7	513.6	506.2	525.9	580.4	532.4	466.2	430.6	419.3	430.6	466.2
152.5°	522.9	527.9	519.5	555.1	598.6	559.1	492.9	453.4	440.0	453.4	492.9
155°	536.9	538.8	532.8	583.3	617.9	585.2	514.1	478.5	465.7	478.5	514.1
157.5°	549.7	553.6	546.7	604.5	634.6	607.9	538.3	503.7	492.4	503.7	538.3
160°	563.5	563.5	567.5	628.3	648.5	626.8	564.0	531.4	515.6	531.4	564.0
162.5°	565.0	574.4	595.6	645.6	661.8	644.1	591.7	551.1	537.3	551.1	591.7
165°	586.7	595.1	627.3	660.9	672.2	659.4	625.8	583.7	567.5	583.7	625.8
167.5°	609.4	627.3	652.0	678.1	682.1	673.7	651.0	622.8	607.9	622.8	651.0
170°	645.6	661.8	673.7	685.5	690.9	686.0	667.3	653.9	643.6	653.9	667.3
172.5°	674.7	684.6	689.5	697.4	693.9	691.9	682.1	675.2	670.2	675.2	682.1
175°	693.0	695.0	700.3	697.9	700.8	695.4	695.9	698.4	678.1	698.4	695.9
177.5°	699.3	702.8	701.3	696.8	697.4	696.4	698.3	699.3	696.5	699.3	698.3
180°	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3



TEST NUMBER: P382208

CATALOG NUMBER: MWL-2-18-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	727.2	727.2	727.2	727.2	727.2	727.2
2.5°	723.9	722.6	724.5	726.7	725.8	724.7
5°	720.2	718.3	720.2	723.0	722.0	721.0
7.5°	714.1	712.7	714.6	716.0	716.0	714.9
10°	705.2	703.8	705.7	707.6	707.6	706.2
12.5°	694.0	692.5	694.0	695.9	696.4	695.9
15°	680.4	679.5	681.0	681.9	682.4	682.4
17.5°	667.3	666.4	667.3	666.9	667.4	668.4
20°	650.0	649.1	650.5	650.1	651.1	650.7
22.5°	631.4	631.4	631.8	632.4	631.5	630.5
25°	611.8	612.7	612.2	612.3	610.0	609.0
27.5°	590.7	591.2	591.3	589.9	586.6	582.9
30°	569.3	569.7	570.3	565.2	559.6	556.8
32.5°	545.0	547.8	546.0	539.0	530.6	526.9
35°	517.4	521.2	518.9	509.6	497.5	495.6
37.5°	491.3	496.4	492.8	476.0	463.8	464.8
40°	461.4	467.5	462.4	440.5	431.2	433.0
42.5°	429.7	440.4	430.7	405.5	401.3	403.1
45°	393.2	407.7	394.3	371.9	370.9	373.7
47.5°	355.9	376.0	356.4	340.1	342.9	347.6
50°	319.9	336.3	320.9	309.3	316.8	321.4
52.5°	286.3	292.4	287.2	281.6	292.5	295.3
55°	252.2	246.2	253.2	255.5	268.6	272.3
57.5°	217.7	206.0	218.6	229.3	245.2	247.1
60°	184.1	175.2	184.5	199.9	218.6	223.3
62.5°	152.3	148.6	152.8	171.9	192.5	195.3
65°	127.1	126.2	127.6	144.4	164.9	170.5
67.5°	105.6	106.6	105.6	120.1	137.8	147.2
70°	86.9	90.7	86.9	99.1	113.1	123.4
72.5°	70.5	74.2	71.1	80.4	91.6	103.7
75°	56.5	61.2	56.5	63.0	72.9	85.1
77.5°	45.3	49.0	45.3	48.1	61.8	74.1
80°	34.1	37.8	34.1	38.4	58.5	69.4
82.5°	23.8	25.7	23.8	38.8	62.8	71.0
85°	18.8	15.4	19.7	44.9	71.1	77.9
87.5°	16.4	3.7	23.4	54.5	84.7	88.2
90°	11.3	0.5	30.1	68.6	99.7	101.8
92.5°	5.7	7.9	39.8	84.1	115.8	118.9
95°	2.9	19.8	52.3	100.7	133.4	135.3
97.5°	5.9	35.1	69.2	116.8	150.0	152.4
100°	16.3	53.9	90.4	135.3	165.6	167.1
102.5°	30.6	74.1	110.7	155.6	183.7	191.4
105°	50.8	98.2	132.8	179.8	205.4	212.4
107.5°	73.0	123.0	154.5	201.5	228.6	233.6
110°	96.7	148.7	176.3	222.7	252.3	258.3



TEST NUMBER: P382208

CATALOG NUMBER: MWL-2-18-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	122.4	175.3	199.0	242.5	277.5	282.0
115°	151.6	200.0	220.3	265.2	297.8	300.2
117.5°	177.8	229.6	242.0	282.0	319.0	319.6
120°	205.4	257.8	263.7	305.2	339.8	343.7
122.5°	233.6	284.4	284.4	325.0	358.0	360.6
125°	259.8	313.1	305.2	339.8	374.8	375.9
127.5°	286.4	342.2	328.0	359.1	391.2	389.7
130°	315.5	369.9	348.7	377.4	406.5	401.5
132.5°	342.2	399.6	369.9	396.1	421.8	424.7
135°	369.0	427.2	388.2	412.4	437.6	436.6
137.5°	394.6	452.9	410.4	425.3	448.0	450.9
140°	419.9	480.6	430.2	443.0	461.8	462.2
142.5°	446.5	508.2	451.9	459.7	476.1	473.1
145°	477.1	534.4	480.0	476.5	486.9	480.6
147.5°	503.2	557.1	499.3	488.9	501.3	492.9
150°	532.4	580.4	525.9	506.2	513.6	509.7
152.5°	559.1	598.6	555.1	519.5	527.9	522.9
155°	585.2	617.9	583.3	532.8	538.8	536.9
157.5°	607.9	634.6	604.5	546.7	553.6	549.7
160°	626.8	648.5	628.3	567.5	563.5	563.5
162.5°	644.1	661.8	645.6	595.6	574.4	565.0
165°	659.4	672.2	660.9	627.3	595.1	586.7
167.5°	673.7	682.1	678.1	652.0	627.3	609.4
170°	686.0	690.9	685.5	673.7	661.8	645.6
172.5°	691.9	693.9	697.4	689.5	684.6	674.7
175°	695.4	700.8	697.9	700.3	695.0	693.0
177.5°	696.4	697.4	696.8	701.3	702.8	699.3
180°	700.3	700.3	700.3	700.3	700.3	700.3

(END OF REPORT)