

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: P392490

Luminaire Tested: **MWL-2-18-17-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392490
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-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

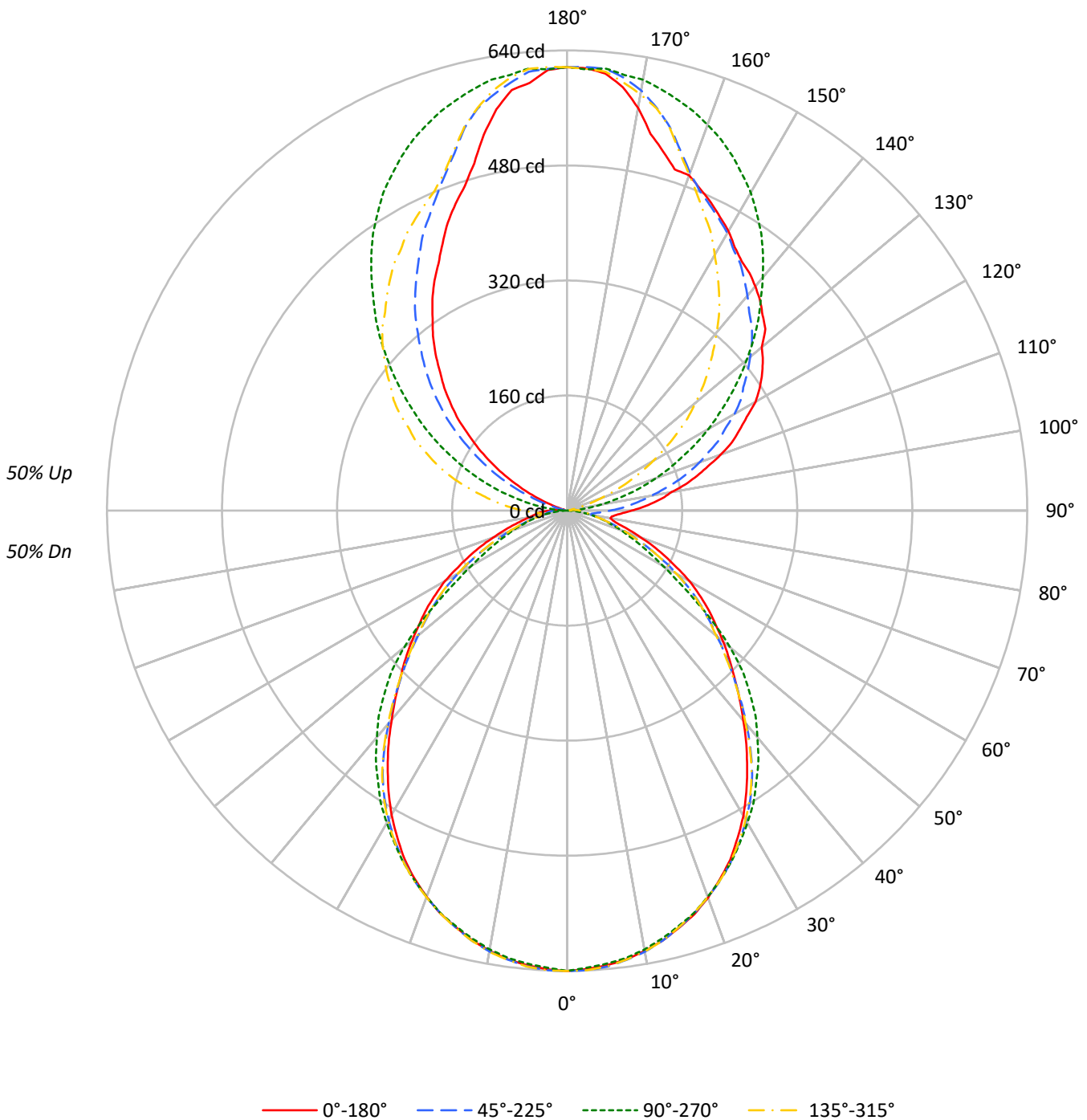
Lumens per Lamp: N/A
Luminaire Lumens: 2922.4 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 33.532
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	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°	8271	8271	8271	8271
5°	8083	7541	8083	7541
10°	7867	6910	7867	6910
15°	7611	6310	7594	6310
20°	7320	5759	7303	5759
25°	6965	5244	6950	5244
30°	6528	4743	6504	4743
35°	6005	4256	5987	4256
40°	5473	3774	5448	3774
45°	4974	3279	4954	3279
50°	4556	2715	4535	2715
55°	4162	2011	4148	2011
60°	3732	1459	3725	1459
65°	3171	1080	3171	1080
70°	2611	805	2618	805
75°	2103	568	2139	568
80°	2083	371	1800	371
85°	3007	162	1766	162



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.2	2.1
10°-20°	169.1	5.8
20°-30°	247.3	8.5
30°-40°	279.1	9.6
40°-50°	259.1	8.9
50°-60°	203.6	7.0
60°-70°	128.7	4.4
70°-80°	64.2	2.2
80°-90°	38.0	1.3
90°-100°	51.3	1.8
100°-110°	95.2	3.3
110°-120°	163.8	5.6
120°-130°	222.4	7.6
130°-140°	253.6	8.7
140°-150°	253.3	8.7
150°-160°	220.6	7.5
160°-170°	155.1	5.3
170°-180°	57.8	2.0
0°-30°	476.6	16.3
0°-40°	755.7	25.9
0°-60°	1218.5	41.7
0°-90°	1449.4	49.6
90°-120°	310.3	10.6
90°-150°	1039.6	35.6
90°-180°	1473.0	50.4
0°-180°	2922.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	640	640	640	640	640	
5°	635	632	635	632	635	60
15°	601	598	600	598	601	169
25°	536	540	535	540	536	246
35°	436	459	435	459	436	273
45°	329	359	328	359	329	255
55°	240	217	239	217	240	214
65°	150	111	150	111	150	149
75°	75	54	76	54	75	83
85°	69	14	40	14	69	55
90°	90	0	24	0	90	50
95°	119	17	16	17	119	103
105°	187	86	4	86	187	198
115°	264	176	61	176	264	262
125°	331	276	150	276	331	296
135°	384	376	242	376	384	297
145°	423	470	326	470	423	267
155°	473	544	410	544	473	218
165°	517	592	500	592	517	147
175°	610	617	597	617	610	57
180°	617	617	617	617	617	



TEST NUMBER: P392490

CATALOG NUMBER: MWL-2-18-17-UNV-L930-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	640.3	640.3	640.3	640.3	640.3	640.3	640.3	640.3	640.3	640.3	640.3
2.5°	638.1	639.1	639.9	637.9	636.2	637.4	639.9	639.1	638.5	639.1	639.9
5°	634.8	635.7	636.6	634.1	632.5	634.1	636.2	635.7	634.8	635.7	636.2
7.5°	629.5	630.4	630.4	629.2	627.5	628.8	630.0	630.0	629.5	630.0	630.0
10°	621.8	623.0	623.0	621.4	619.7	620.9	622.6	622.1	621.8	622.1	622.6
12.5°	612.7	613.2	612.7	611.1	609.7	611.1	612.7	612.2	611.9	612.2	612.7
15°	600.9	600.9	600.4	599.6	598.3	599.1	599.9	599.9	599.6	599.9	599.9
17.5°	588.5	587.6	587.2	587.6	586.8	587.6	586.8	587.2	587.2	587.2	586.8
20°	572.9	573.3	572.4	572.8	571.5	572.3	572.0	572.4	571.6	572.4	572.0
22.5°	555.2	556.0	556.8	556.3	555.9	555.9	556.3	555.2	554.4	555.2	556.3
25°	536.2	537.1	539.1	539.0	539.5	538.7	538.2	535.8	535.0	535.8	538.2
27.5°	513.2	516.5	519.4	520.6	520.6	520.1	518.5	515.2	511.9	515.2	518.5
30°	490.3	492.7	497.7	502.1	501.6	501.3	496.3	491.4	488.5	491.4	496.3
32.5°	463.9	467.2	474.6	480.8	482.3	479.9	473.3	465.4	462.2	465.4	473.3
35°	436.4	438.0	448.7	456.9	458.9	455.6	447.4	436.7	435.1	436.7	447.4
37.5°	409.3	408.4	419.1	433.9	437.1	432.6	417.8	407.1	407.9	407.1	417.8
40°	381.3	379.7	387.9	407.1	411.6	406.3	386.1	377.9	379.6	377.9	386.1
42.5°	354.9	353.3	357.0	379.2	387.8	378.4	355.7	351.6	353.3	351.6	355.7
45°	329.0	326.6	327.5	347.2	359.0	346.2	325.7	325.3	327.7	325.3	325.7
47.5°	306.1	301.9	299.5	313.8	331.1	313.4	297.7	300.6	304.7	300.6	297.7
50°	283.0	278.9	272.3	282.6	296.1	281.7	270.6	277.2	281.7	277.2	270.6
52.5°	260.0	257.5	247.9	252.9	257.5	252.1	246.7	255.8	258.7	255.8	246.7
55°	239.8	236.5	225.0	222.9	216.8	222.1	223.7	235.3	239.0	235.3	223.7
57.5°	217.6	215.9	201.9	192.5	181.4	191.7	200.7	214.7	216.8	214.7	200.7
60°	196.6	192.5	176.0	162.5	154.3	162.1	175.2	191.7	196.2	191.7	175.2
62.5°	172.0	169.5	151.4	134.5	130.8	134.1	150.6	168.6	171.5	168.6	150.6
65°	150.1	145.2	127.1	112.4	111.1	111.9	126.7	144.8	150.1	144.8	126.7
67.5°	129.6	121.3	105.7	93.0	93.9	93.0	105.3	121.0	129.6	121.0	105.3
70°	108.7	99.6	87.3	76.5	79.9	76.5	87.3	100.0	109.0	100.0	87.3
72.5°	91.3	80.7	70.8	62.6	65.3	62.1	70.8	81.1	92.2	81.1	70.8
75°	74.9	64.2	55.5	49.7	53.9	49.7	56.0	64.6	76.2	64.6	56.0
77.5°	65.2	54.4	42.4	39.9	43.1	39.9	42.9	53.1	63.5	53.1	42.9
80°	61.1	51.5	33.8	30.0	33.3	30.0	32.9	44.5	52.8	44.5	32.9
82.5°	62.5	55.3	34.2	21.0	22.6	21.0	28.9	39.6	46.0	39.6	28.9
85°	68.6	62.6	39.5	17.3	13.6	16.6	26.9	36.0	40.3	36.0	26.9
87.5°	77.7	74.6	48.0	20.6	3.3	14.4	23.2	32.8	32.8	32.8	23.2
90°	89.6	87.8	60.4	26.5	0.4	9.9	17.3	26.5	24.4	26.5	17.3
92.5°	104.7	102.0	74.1	35.0	7.0	5.0	14.4	21.5	19.4	21.5	14.4
95°	119.1	117.5	88.7	46.1	17.4	2.6	10.4	16.6	16.1	16.6	10.4
97.5°	134.2	132.1	102.8	60.9	30.9	5.2	6.8	12.4	12.4	12.4	6.8
100°	147.1	145.8	119.1	79.6	47.5	14.4	3.9	9.2	10.0	9.2	3.9
102.5°	168.5	161.7	137.0	97.5	65.2	26.9	7.3	5.1	6.8	5.1	7.3
105°	187.0	180.9	158.3	116.9	86.5	44.7	17.8	6.0	3.9	6.0	17.8
107.5°	205.7	201.3	177.4	136.0	108.3	64.3	32.6	16.9	10.8	16.9	32.6
110°	227.4	222.2	196.1	155.2	130.9	85.1	49.5	30.8	23.9	30.8	49.5



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CATALOG NUMBER: MWL-2-18-17-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	248.3	244.3	213.5	175.2	154.4	107.8	70.4	48.3	41.6	48.3	70.4
115°	264.3	262.2	233.5	194.0	176.1	133.5	93.5	68.7	60.8	68.7	93.5
117.5°	281.4	280.9	248.3	213.1	202.2	156.6	114.8	89.1	80.8	89.1	114.8
120°	302.6	299.2	268.7	232.2	227.0	180.9	138.2	112.5	104.3	112.5	138.2
122.5°	317.5	315.2	286.2	250.4	250.4	205.7	161.0	135.2	126.5	135.2	161.0
125°	331.0	330.0	299.2	268.7	275.7	228.8	186.0	160.0	150.5	160.0	186.0
127.5°	343.1	344.5	316.2	288.8	301.3	252.2	210.9	182.2	172.1	182.2	210.9
130°	353.5	357.9	332.3	307.0	325.7	277.8	233.1	204.5	197.8	204.5	233.1
132.5°	373.9	371.4	348.8	325.7	351.8	301.3	256.6	226.6	219.2	226.6	256.6
135°	384.4	385.3	363.1	341.8	376.1	324.9	278.8	249.2	241.7	249.2	278.8
137.5°	397.0	394.5	374.5	361.4	398.8	347.4	300.4	273.0	261.3	273.0	300.4
140°	407.0	406.6	390.1	378.8	423.2	369.7	323.5	295.7	284.8	295.7	323.5
142.5°	416.6	419.2	404.8	397.9	447.5	393.1	347.4	317.0	306.5	317.0	347.4
145°	423.2	428.7	419.6	422.6	470.5	420.1	368.3	337.4	326.1	337.4	368.3
147.5°	434.0	441.4	430.5	439.6	490.5	443.1	389.2	358.7	348.7	358.7	389.2
150°	448.8	452.2	445.7	463.1	511.0	468.8	410.5	379.1	369.2	379.1	410.5
152.5°	460.4	464.8	457.4	488.8	527.1	492.3	434.0	399.2	387.4	399.2	434.0
155°	472.7	474.4	469.1	513.6	544.1	515.3	452.7	421.3	410.0	421.3	452.7
157.5°	484.0	487.4	481.4	532.3	558.8	535.3	474.0	443.5	433.6	443.5	474.0
160°	496.2	496.2	499.7	553.2	571.0	551.9	496.6	467.9	454.0	467.9	496.6
162.5°	497.5	505.8	524.4	568.5	582.7	567.1	521.0	485.2	473.1	485.2	521.0
165°	516.6	524.0	552.3	581.9	591.9	580.6	551.0	513.9	499.7	513.9	551.0
167.5°	536.6	552.3	574.1	597.1	600.6	593.2	573.2	548.4	535.3	548.4	573.2
170°	568.5	582.7	593.2	603.6	608.3	604.0	587.6	575.8	566.7	575.8	587.6
172.5°	594.1	602.8	607.1	614.1	611.0	609.2	600.6	594.5	590.1	594.5	600.6
175°	610.2	611.9	616.6	614.5	617.1	612.3	612.7	614.9	597.1	614.9	612.7
177.5°	615.7	618.8	617.5	613.5	614.1	613.2	614.9	615.7	613.3	615.7	614.9
180°	616.6	616.6	616.6	616.6	616.6	616.6	616.6	616.6	616.6	616.6	616.6



TEST NUMBER: P392490

CATALOG NUMBER: MWL-2-18-17-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	640.3	640.3	640.3	640.3	640.3	640.3
2.5°	637.4	636.2	637.9	639.9	639.1	638.1
5°	634.1	632.5	634.1	636.6	635.7	634.8
7.5°	628.8	627.5	629.2	630.4	630.4	629.5
10°	620.9	619.7	621.4	623.0	623.0	621.8
12.5°	611.1	609.7	611.1	612.7	613.2	612.7
15°	599.1	598.3	599.6	600.4	600.9	600.9
17.5°	587.6	586.8	587.6	587.2	587.6	588.5
20°	572.3	571.5	572.8	572.4	573.3	572.9
22.5°	555.9	555.9	556.3	556.8	556.0	555.2
25°	538.7	539.5	539.0	539.1	537.1	536.2
27.5°	520.1	520.6	520.6	519.4	516.5	513.2
30°	501.3	501.6	502.1	497.7	492.7	490.3
32.5°	479.9	482.3	480.8	474.6	467.2	463.9
35°	455.6	458.9	456.9	448.7	438.0	436.4
37.5°	432.6	437.1	433.9	419.1	408.4	409.3
40°	406.3	411.6	407.1	387.9	379.7	381.3
42.5°	378.4	387.8	379.2	357.0	353.3	354.9
45°	346.2	359.0	347.2	327.5	326.6	329.0
47.5°	313.4	331.1	313.8	299.5	301.9	306.1
50°	281.7	296.1	282.6	272.3	278.9	283.0
52.5°	252.1	257.5	252.9	247.9	257.5	260.0
55°	222.1	216.8	222.9	225.0	236.5	239.8
57.5°	191.7	181.4	192.5	201.9	215.9	217.6
60°	162.1	154.3	162.5	176.0	192.5	196.6
62.5°	134.1	130.8	134.5	151.4	169.5	172.0
65°	111.9	111.1	112.4	127.1	145.2	150.1
67.5°	93.0	93.9	93.0	105.7	121.3	129.6
70°	76.5	79.9	76.5	87.3	99.6	108.7
72.5°	62.1	65.3	62.6	70.8	80.7	91.3
75°	49.7	53.9	49.7	55.5	64.2	74.9
77.5°	39.9	43.1	39.9	42.4	54.4	65.2
80°	30.0	33.3	30.0	33.8	51.5	61.1
82.5°	21.0	22.6	21.0	34.2	55.3	62.5
85°	16.6	13.6	17.3	39.5	62.6	68.6
87.5°	14.4	3.3	20.6	48.0	74.6	77.7
90°	9.9	0.4	26.5	60.4	87.8	89.6
92.5°	5.0	7.0	35.0	74.1	102.0	104.7
95°	2.6	17.4	46.1	88.7	117.5	119.1
97.5°	5.2	30.9	60.9	102.8	132.1	134.2
100°	14.4	47.5	79.6	119.1	145.8	147.1
102.5°	26.9	65.2	97.5	137.0	161.7	168.5
105°	44.7	86.5	116.9	158.3	180.9	187.0
107.5°	64.3	108.3	136.0	177.4	201.3	205.7
110°	85.1	130.9	155.2	196.1	222.2	227.4



TEST NUMBER: P392490

CATALOG NUMBER: MWL-2-18-17-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	107.8	154.4	175.2	213.5	244.3	248.3
115°	133.5	176.1	194.0	233.5	262.2	264.3
117.5°	156.6	202.2	213.1	248.3	280.9	281.4
120°	180.9	227.0	232.2	268.7	299.2	302.6
122.5°	205.7	250.4	250.4	286.2	315.2	317.5
125°	228.8	275.7	268.7	299.2	330.0	331.0
127.5°	252.2	301.3	288.8	316.2	344.5	343.1
130°	277.8	325.7	307.0	332.3	357.9	353.5
132.5°	301.3	351.8	325.7	348.8	371.4	373.9
135°	324.9	376.1	341.8	363.1	385.3	384.4
137.5°	347.4	398.8	361.4	374.5	394.5	397.0
140°	369.7	423.2	378.8	390.1	406.6	407.0
142.5°	393.1	447.5	397.9	404.8	419.2	416.6
145°	420.1	470.5	422.6	419.6	428.7	423.2
147.5°	443.1	490.5	439.6	430.5	441.4	434.0
150°	468.8	511.0	463.1	445.7	452.2	448.8
152.5°	492.3	527.1	488.8	457.4	464.8	460.4
155°	515.3	544.1	513.6	469.1	474.4	472.7
157.5°	535.3	558.8	532.3	481.4	487.4	484.0
160°	551.9	571.0	553.2	499.7	496.2	496.2
162.5°	567.1	582.7	568.5	524.4	505.8	497.5
165°	580.6	591.9	581.9	552.3	524.0	516.6
167.5°	593.2	600.6	597.1	574.1	552.3	536.6
170°	604.0	608.3	603.6	593.2	582.7	568.5
172.5°	609.2	611.0	614.1	607.1	602.8	594.1
175°	612.3	617.1	614.5	616.6	611.9	610.2
177.5°	613.2	614.1	613.5	617.5	618.8	615.7
180°	616.6	616.6	616.6	616.6	616.6	616.6

(END OF REPORT)