

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: P392491

Luminaire Tested: **MWL-2-18-17-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392491
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-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

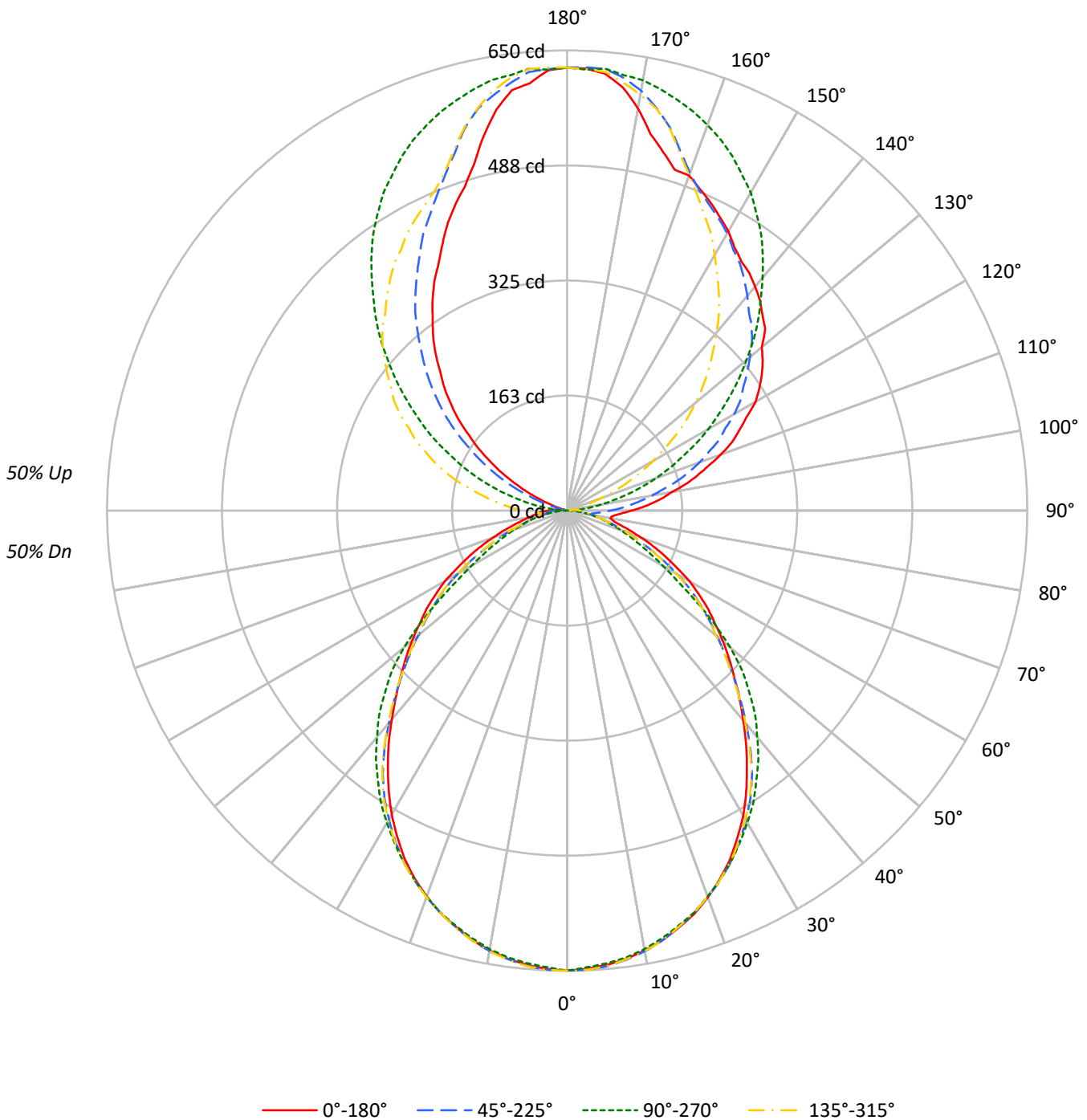
Lumens per Lamp: N/A
Luminaire Lumens: 2965.8 lumens
Efficiency: N/A
Efficacy: 88.4 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 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°	8393	8393	8393	8393
5°	8203	7652	8203	7652
10°	7983	7013	7983	7013
15°	7723	6403	7707	6403
20°	7428	5845	7412	5845
25°	7069	5322	7052	5322
30°	6623	4814	6600	4814
35°	6093	4319	6075	4319
40°	5553	3830	5529	3830
45°	5048	3327	5028	3327
50°	4625	2755	4602	2755
55°	4223	2040	4209	2040
60°	3787	1480	3780	1480
65°	3219	1095	3219	1095
70°	2647	816	2656	816
75°	2134	576	2168	576
80°	2114	377	1828	377
85°	3051	165	1793	165



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.1	2.1
10°-20°	171.6	5.8
20°-30°	251.0	8.5
30°-40°	283.3	9.6
40°-50°	263.0	8.9
50°-60°	206.6	7.0
60°-70°	130.6	4.4
70°-80°	65.2	2.2
80°-90°	38.6	1.3
90°-100°	52.0	1.8
100°-110°	96.6	3.3
110°-120°	166.2	5.6
120°-130°	225.7	7.6
130°-140°	257.4	8.7
140°-150°	257.1	8.7
150°-160°	223.9	7.5
160°-170°	157.4	5.3
170°-180°	58.6	2.0
0°-30°	483.7	16.3
0°-40°	767.0	25.9
0°-60°	1236.5	41.7
0°-90°	1470.9	49.6
90°-120°	314.9	10.6
90°-150°	1055.0	35.6
90°-180°	1495.0	50.4
0°-180°	2965.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	650	650	650	650	650	
5°	644	642	644	642	644	61
15°	610	607	608	607	610	172
25°	544	548	543	548	544	250
35°	443	466	442	466	443	277
45°	334	364	333	364	334	259
55°	243	220	242	220	243	217
65°	152	113	152	113	152	152
75°	76	55	77	55	76	85
85°	70	14	41	14	70	55
90°	91	0	25	0	91	50
95°	121	18	16	18	121	105
105°	190	88	4	88	190	201
115°	268	179	62	179	268	266
125°	336	280	153	280	336	300
135°	390	382	245	382	390	301
145°	429	478	331	478	429	271
155°	480	552	416	552	480	221
165°	524	601	507	601	524	149
175°	619	626	606	626	619	58
180°	626	626	626	626	626	



TEST NUMBER: P392491

CATALOG NUMBER: MWL-2-18-17-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	649.8	649.8	649.8	649.8	649.8	649.8	649.8	649.8	649.8	649.8	649.8
2.5°	647.6	648.6	649.3	647.3	645.7	646.8	649.3	648.6	648.0	648.6	649.3
5°	644.2	645.2	646.1	643.6	641.8	643.6	645.6	645.2	644.2	645.2	645.6
7.5°	638.9	639.8	639.8	638.5	636.8	638.1	639.3	639.3	638.9	639.3	639.3
10°	631.0	632.2	632.2	630.6	629.0	630.2	631.8	631.4	631.0	631.4	631.8
12.5°	621.8	622.2	621.8	620.2	618.9	620.2	621.8	621.4	621.0	621.4	621.8
15°	609.8	609.7	609.3	608.5	607.1	608.0	608.8	608.8	608.5	608.8	608.8
17.5°	597.3	596.4	596.0	596.3	595.5	596.3	595.5	596.0	596.0	596.0	595.5
20°	581.4	581.8	580.9	581.2	580.0	580.9	580.5	580.9	580.1	580.9	580.5
22.5°	563.4	564.3	565.1	564.6	564.2	564.2	564.6	563.4	562.6	563.4	564.6
25°	544.2	545.1	547.2	547.1	547.5	546.6	546.2	543.7	542.9	543.7	546.2
27.5°	520.8	524.2	527.1	528.4	528.3	527.8	526.2	522.8	519.6	522.8	526.2
30°	497.5	500.0	505.0	509.6	509.1	508.7	503.7	498.7	495.7	498.7	503.7
32.5°	470.8	474.2	481.7	487.9	489.5	487.0	480.3	472.4	469.1	472.4	480.3
35°	442.8	444.5	455.4	463.7	465.7	462.3	454.1	443.2	441.5	443.2	454.1
37.5°	415.3	414.5	425.3	440.3	443.6	439.0	423.9	413.2	413.9	413.2	423.9
40°	386.9	385.3	393.6	413.2	417.7	412.3	391.8	383.5	385.2	383.5	391.8
42.5°	360.3	358.5	362.3	384.9	393.6	383.9	361.0	356.8	358.4	356.8	361.0
45°	333.9	331.4	332.3	352.3	364.3	351.4	330.5	330.1	332.6	330.1	330.5
47.5°	310.6	306.4	303.9	318.4	335.9	318.0	302.2	305.0	309.3	305.0	302.2
50°	287.3	283.0	276.4	286.7	300.5	285.9	274.7	281.3	285.9	281.3	274.7
52.5°	263.9	261.4	251.7	256.7	261.3	255.8	250.4	259.6	262.5	259.6	250.4
55°	243.3	240.0	228.3	226.3	220.0	225.4	227.0	238.8	242.5	238.8	227.0
57.5°	220.8	219.1	204.9	195.4	184.1	194.5	203.7	217.9	220.0	217.9	203.7
60°	199.5	195.4	178.6	164.9	156.5	164.5	177.8	194.5	199.1	194.5	177.8
62.5°	174.5	172.0	153.6	136.5	132.8	136.1	152.8	171.1	174.0	171.1	152.8
65°	152.4	147.4	129.0	114.0	112.7	113.6	128.6	147.0	152.4	147.0	128.6
67.5°	131.5	123.1	107.3	94.4	95.2	94.4	106.9	122.8	131.5	122.8	106.9
70°	110.2	101.0	88.5	77.7	81.0	77.7	88.5	101.5	110.6	101.5	88.5
72.5°	92.7	81.9	71.9	63.5	66.4	63.0	71.9	82.2	93.5	82.2	71.9
75°	76.0	65.1	56.3	50.5	54.6	50.5	56.9	65.6	77.2	65.6	56.9
77.5°	66.2	55.2	43.0	40.5	43.8	40.5	43.5	53.9	64.5	53.9	43.5
80°	62.0	52.2	34.3	30.5	33.8	30.5	33.5	45.1	53.6	45.1	33.5
82.5°	63.4	56.1	34.6	21.3	23.0	21.3	29.3	40.2	46.7	40.2	29.3
85°	69.6	63.5	40.1	17.6	13.8	16.7	27.4	36.6	40.9	36.6	27.4
87.5°	78.8	75.7	48.8	21.0	3.4	14.7	23.6	33.3	33.3	33.3	23.6
90°	90.9	89.1	61.4	26.8	0.4	10.1	17.6	26.8	24.8	26.8	17.6
92.5°	106.2	103.5	75.2	35.6	7.1	5.1	14.7	21.7	19.7	21.7	14.7
95°	120.9	119.2	89.9	46.8	17.7	2.6	10.5	16.7	16.4	16.7	10.5
97.5°	136.2	134.0	104.4	61.9	31.4	5.3	6.8	12.6	12.6	12.6	6.8
100°	149.3	148.0	120.9	80.8	48.1	14.6	3.9	9.3	10.2	9.3	3.9
102.5°	171.0	164.1	139.0	98.9	66.2	27.4	7.4	5.2	6.8	5.2	7.4
105°	189.8	183.5	160.7	118.6	87.8	45.4	18.0	6.1	3.9	6.1	18.0
107.5°	208.7	204.2	180.1	138.1	109.9	65.2	33.0	17.2	11.0	17.2	33.0
110°	230.8	225.5	199.0	157.6	132.9	86.5	50.2	31.3	24.2	31.3	50.2



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CATALOG NUMBER: MWL-2-18-17-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	252.0	248.0	216.7	177.8	156.6	109.4	71.4	49.0	42.3	49.0	71.4
115°	268.3	266.1	237.0	196.8	178.7	135.4	94.9	69.6	61.8	69.6	94.9
117.5°	285.5	285.0	252.0	216.2	205.2	158.9	116.5	90.4	82.1	90.4	116.5
120°	307.2	303.7	272.7	235.7	230.4	183.5	140.3	114.2	105.9	114.2	140.3
122.5°	322.2	320.0	290.4	254.2	254.2	208.7	163.3	137.2	128.4	137.2	163.3
125°	335.8	335.0	303.7	272.7	279.8	232.1	188.8	162.4	152.7	162.4	188.8
127.5°	348.2	349.6	320.8	293.0	305.8	255.9	214.0	184.9	174.7	184.9	214.0
130°	358.8	363.2	337.2	311.6	330.5	282.0	236.6	207.4	200.8	207.4	236.6
132.5°	379.5	376.9	354.0	330.5	357.1	305.8	260.3	229.9	222.4	229.9	260.3
135°	390.1	391.1	368.5	346.9	381.7	329.7	282.9	252.8	245.3	252.8	282.9
137.5°	403.0	400.3	380.0	366.7	404.7	352.7	304.9	277.2	265.2	277.2	304.9
140°	413.1	412.6	395.9	384.4	429.4	375.2	328.2	300.0	289.0	300.0	328.2
142.5°	422.7	425.4	410.8	403.8	454.1	398.9	352.6	321.7	311.1	321.7	352.6
145°	429.4	435.1	425.8	428.9	477.5	426.4	373.7	342.5	330.9	342.5	373.7
147.5°	440.4	447.9	436.8	446.2	497.8	449.7	394.9	364.1	353.9	364.1	394.9
150°	455.4	459.0	452.3	469.9	518.6	475.7	416.5	384.8	374.7	384.8	416.5
152.5°	467.3	471.7	464.2	496.0	534.9	499.6	440.4	405.1	393.2	405.1	440.4
155°	479.7	481.5	476.1	521.2	552.2	522.9	459.4	427.6	416.2	427.6	459.4
157.5°	491.2	494.7	488.5	540.2	567.1	543.2	481.0	450.1	440.0	450.1	481.0
160°	503.5	503.5	507.1	561.4	579.5	560.1	504.0	474.8	460.7	474.8	504.0
162.5°	504.9	513.3	532.2	576.8	591.3	575.6	528.7	492.5	480.1	492.5	528.7
165°	524.3	531.8	560.5	590.6	600.7	589.2	559.2	521.6	507.1	521.6	559.2
167.5°	544.6	560.5	582.6	606.0	609.5	602.0	581.7	556.5	543.2	556.5	581.7
170°	576.8	591.3	602.0	612.6	617.4	613.0	596.3	584.3	575.1	584.3	596.3
172.5°	602.9	611.7	616.2	623.2	620.1	618.3	609.5	603.3	598.9	603.3	609.5
175°	619.2	621.0	625.8	623.6	626.3	621.4	621.8	624.0	606.0	624.0	621.8
177.5°	624.9	628.0	626.6	622.7	623.2	622.2	624.0	624.9	622.3	624.9	624.0
180°	625.8	625.8	625.8	625.8	625.8	625.8	625.8	625.8	625.8	625.8	625.8



TEST NUMBER: P392491

CATALOG NUMBER: MWL-2-18-17-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	649.8	649.8	649.8	649.8	649.8	649.8
2.5°	646.8	645.7	647.3	649.3	648.6	647.6
5°	643.6	641.8	643.6	646.1	645.2	644.2
7.5°	638.1	636.8	638.5	639.8	639.8	638.9
10°	630.2	629.0	630.6	632.2	632.2	631.0
12.5°	620.2	618.9	620.2	621.8	622.2	621.8
15°	608.0	607.1	608.5	609.3	609.7	609.8
17.5°	596.3	595.5	596.3	596.0	596.4	597.3
20°	580.9	580.0	581.2	580.9	581.8	581.4
22.5°	564.2	564.2	564.6	565.1	564.3	563.4
25°	546.6	547.5	547.1	547.2	545.1	544.2
27.5°	527.8	528.3	528.4	527.1	524.2	520.8
30°	508.7	509.1	509.6	505.0	500.0	497.5
32.5°	487.0	489.5	487.9	481.7	474.2	470.8
35°	462.3	465.7	463.7	455.4	444.5	442.8
37.5°	439.0	443.6	440.3	425.3	414.5	415.3
40°	412.3	417.7	413.2	393.6	385.3	386.9
42.5°	383.9	393.6	384.9	362.3	358.5	360.3
45°	351.4	364.3	352.3	332.3	331.4	333.9
47.5°	318.0	335.9	318.4	303.9	306.4	310.6
50°	285.9	300.5	286.7	276.4	283.0	287.3
52.5°	255.8	261.3	256.7	251.7	261.4	263.9
55°	225.4	220.0	226.3	228.3	240.0	243.3
57.5°	194.5	184.1	195.4	204.9	219.1	220.8
60°	164.5	156.5	164.9	178.6	195.4	199.5
62.5°	136.1	132.8	136.5	153.6	172.0	174.5
65°	113.6	112.7	114.0	129.0	147.4	152.4
67.5°	94.4	95.2	94.4	107.3	123.1	131.5
70°	77.7	81.0	77.7	88.5	101.0	110.2
72.5°	63.0	66.4	63.5	71.9	81.9	92.7
75°	50.5	54.6	50.5	56.3	65.1	76.0
77.5°	40.5	43.8	40.5	43.0	55.2	66.2
80°	30.5	33.8	30.5	34.3	52.2	62.0
82.5°	21.3	23.0	21.3	34.6	56.1	63.4
85°	16.7	13.8	17.6	40.1	63.5	69.6
87.5°	14.7	3.4	21.0	48.8	75.7	78.8
90°	10.1	0.4	26.8	61.4	89.1	90.9
92.5°	5.1	7.1	35.6	75.2	103.5	106.2
95°	2.6	17.7	46.8	89.9	119.2	120.9
97.5°	5.3	31.4	61.9	104.4	134.0	136.2
100°	14.6	48.1	80.8	120.9	148.0	149.3
102.5°	27.4	66.2	98.9	139.0	164.1	171.0
105°	45.4	87.8	118.6	160.7	183.5	189.8
107.5°	65.2	109.9	138.1	180.1	204.2	208.7
110°	86.5	132.9	157.6	199.0	225.5	230.8



TEST NUMBER: P392491

CATALOG NUMBER: MWL-2-18-17-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	109.4	156.6	177.8	216.7	248.0	252.0
115°	135.4	178.7	196.8	237.0	266.1	268.3
117.5°	158.9	205.2	216.2	252.0	285.0	285.5
120°	183.5	230.4	235.7	272.7	303.7	307.2
122.5°	208.7	254.2	254.2	290.4	320.0	322.2
125°	232.1	279.8	272.7	303.7	335.0	335.8
127.5°	255.9	305.8	293.0	320.8	349.6	348.2
130°	282.0	330.5	311.6	337.2	363.2	358.8
132.5°	305.8	357.1	330.5	354.0	376.9	379.5
135°	329.7	381.7	346.9	368.5	391.1	390.1
137.5°	352.7	404.7	366.7	380.0	400.3	403.0
140°	375.2	429.4	384.4	395.9	412.6	413.1
142.5°	398.9	454.1	403.8	410.8	425.4	422.7
145°	426.4	477.5	428.9	425.8	435.1	429.4
147.5°	449.7	497.8	446.2	436.8	447.9	440.4
150°	475.7	518.6	469.9	452.3	459.0	455.4
152.5°	499.6	534.9	496.0	464.2	471.7	467.3
155°	522.9	552.2	521.2	476.1	481.5	479.7
157.5°	543.2	567.1	540.2	488.5	494.7	491.2
160°	560.1	579.5	561.4	507.1	503.5	503.5
162.5°	575.6	591.3	576.8	532.2	513.3	504.9
165°	589.2	600.7	590.6	560.5	531.8	524.3
167.5°	602.0	609.5	606.0	582.6	560.5	544.6
170°	613.0	617.4	612.6	602.0	591.3	576.8
172.5°	618.3	620.1	623.2	616.2	611.7	602.9
175°	621.4	626.3	623.6	625.8	621.0	619.2
177.5°	622.2	623.2	622.7	626.6	628.0	624.9
180°	625.8	625.8	625.8	625.8	625.8	625.8

(END OF REPORT)