

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: P392488

Luminaire Tested: **MWL-2-18-13-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392488
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-2-18-13-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

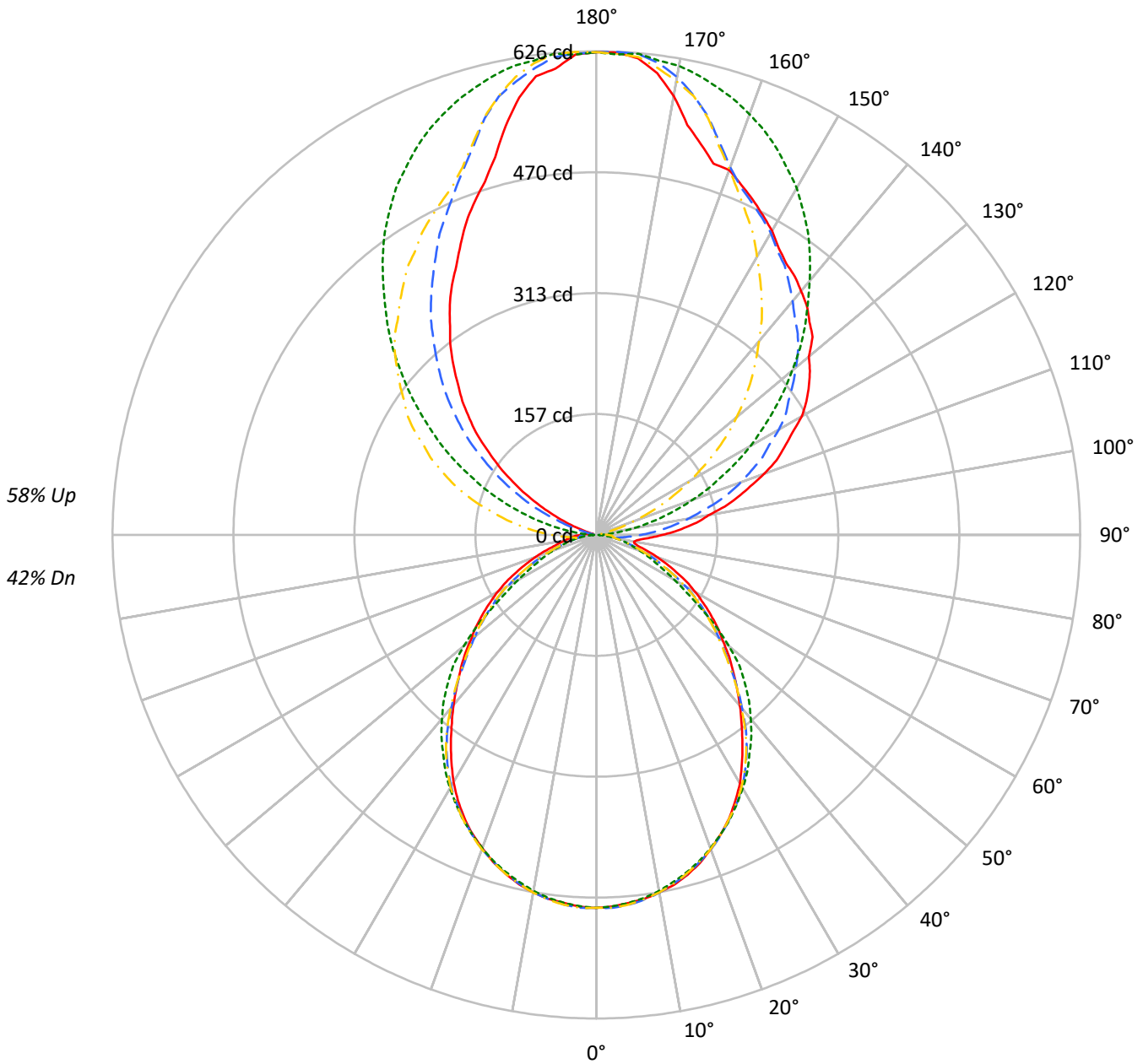
Lumens per Lamp: N/A
Luminaire Lumens: 2590.4 lumens
Efficiency: N/A
Efficacy: 90.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 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



TEST NUMBER: P392488
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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270° - - - 135°-315°



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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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49	42
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42	36
2	88	81	75	70	80	74	69	65	61	58	54	50	47	45	39	37	36	31
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31	26
4	74	63	56	50	67	58	51	46	48	44	40	40	36	33	31	29	27	23
5	68	56	49	43	62	52	45	40	43	38	34	36	32	29	28	26	24	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	26	23	21	18
7	58	46	38	33	53	42	35	31	36	30	27	29	25	23	24	21	19	16
8	54	42	34	29	49	38	32	27	33	27	24	27	23	20	22	19	17	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	13
10	47	35	28	23	43	32	26	22	27	23	19	23	19	16	19	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	6236	6236	6236	6236
5°	6088	5702	6088	5702
10°	5944	5216	5944	5216
15°	5768	4765	5750	4765
20°	5530	4348	5512	4348
25°	5269	3958	5252	3958
30°	4945	3582	4922	3582
35°	4531	3204	4514	3204
40°	4151	2850	4126	2850
45°	3785	2481	3766	2481
50°	3440	2051	3419	2051
55°	3136	1521	3121	1521
60°	2804	1109	2796	1109
65°	2408	812	2408	812
70°	2006	606	2018	606
75°	1572	436	1606	436
80°	1684	274	1401	274
85°	2647	114	1389	114



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.4	1.8
10°-20°	127.8	4.9
20°-30°	186.9	7.2
30°-40°	211.0	8.1
40°-50°	196.1	7.6
50°-60°	154.1	5.9
60°-70°	97.8	3.8
70°-80°	48.9	1.9
80°-90°	31.8	1.2
90°-100°	49.6	1.9
100°-110°	96.2	3.7
110°-120°	166.2	6.4
120°-130°	225.6	8.7
130°-140°	257.3	9.9
140°-150°	256.6	9.9
150°-160°	223.5	8.6
160°-170°	157.2	6.1
170°-180°	58.6	2.3
0°-30°	360.1	13.9
0°-40°	571.1	22.0
0°-60°	921.2	35.6
0°-90°	1099.7	42.5
90°-120°	312.0	12.0
90°-150°	1051.5	40.6
90°-180°	1491.0	57.6
0°-180°	2590.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	483	483	483	483	483	
5°	478	478	478	478	478	45
15°	455	452	454	452	455	128
25°	406	407	404	407	406	186
35°	329	346	328	346	329	206
45°	250	272	249	272	250	194
55°	181	164	180	164	181	162
65°	114	84	114	84	114	114
75°	56	41	57	41	56	64
85°	60	10	32	10	60	47
90°	85	0	19	0	85	47
95°	117	18	12	18	117	102
105°	190	87	4	87	190	200
115°	268	179	62	179	268	266
125°	336	280	153	280	336	300
135°	390	382	245	382	390	301
145°	428	477	330	477	428	270
155°	479	552	415	552	479	221
165°	523	600	506	600	523	148
175°	619	625	606	625	619	58
180°	625	625	625	625	625	



TEST NUMBER: P392488

CATALOG NUMBER: MWL-2-18-13-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	482.8	482.8	482.8	482.8	482.8	482.8	482.8	482.8	482.8	482.8	482.8
2.5°	481.5	482.4	483.2	482.0	481.2	481.5	483.2	482.4	481.8	482.4	483.2
5°	478.1	479.9	480.7	479.0	478.2	479.0	480.3	479.9	478.1	479.9	480.3
7.5°	475.2	476.1	476.1	474.9	474.0	474.4	475.7	475.7	475.2	475.7	475.7
10°	469.8	470.3	470.3	469.4	467.8	469.0	469.8	469.3	469.8	469.3	469.8
12.5°	464.0	463.6	462.3	461.5	460.2	461.5	462.3	462.7	463.2	462.7	462.3
15°	455.4	454.4	454.0	454.0	451.8	453.5	453.5	453.5	454.0	453.5	453.5
17.5°	445.3	444.4	444.0	443.5	442.7	443.5	443.5	444.0	444.0	444.0	443.5
20°	432.8	433.2	433.2	431.8	431.4	431.4	432.7	432.3	431.4	432.3	432.7
22.5°	419.8	419.8	420.7	421.0	419.7	420.6	420.1	418.9	418.9	418.9	420.1
25°	405.6	405.6	406.9	407.6	407.2	407.2	406.0	404.3	404.3	404.3	406.0
27.5°	388.9	389.8	392.7	393.9	393.1	393.5	391.8	388.5	387.6	388.5	391.8
30°	371.4	373.1	377.3	379.3	378.8	378.5	375.9	371.7	369.7	371.7	375.9
32.5°	350.6	353.1	358.9	363.5	363.4	362.6	357.6	351.3	348.8	351.3	357.6
35°	329.3	331.8	339.3	345.9	345.5	344.6	338.0	330.5	328.0	330.5	338.0
37.5°	308.4	309.3	317.6	327.6	329.2	326.3	316.3	308.0	307.1	308.0	316.3
40°	289.2	287.6	293.4	308.1	310.8	307.1	291.7	285.8	287.5	285.8	291.7
42.5°	269.2	266.7	270.4	286.3	292.5	285.4	269.1	265.0	267.5	265.0	269.1
45°	250.4	247.9	247.1	262.9	271.6	262.1	245.3	246.6	249.1	246.6	245.3
47.5°	232.9	228.8	226.3	238.2	251.6	237.8	224.5	227.5	231.6	227.5	224.5
50°	213.7	212.1	207.1	214.1	223.7	213.2	205.3	210.3	212.4	210.3	205.3
52.5°	197.9	195.4	188.2	191.6	195.3	190.7	187.0	193.6	196.6	193.6	187.0
55°	180.7	179.1	169.8	169.5	164.0	168.6	168.6	177.8	179.8	177.8	168.6
57.5°	164.0	162.3	152.3	146.1	137.3	145.2	151.1	161.1	163.2	161.1	151.1
60°	147.7	146.1	133.6	124.0	117.3	123.6	132.7	145.2	147.3	145.2	132.7
62.5°	131.9	128.6	114.4	102.3	98.5	101.8	113.6	127.7	131.5	127.7	113.6
65°	114.0	109.8	96.5	85.6	83.5	85.2	96.0	109.4	114.0	109.4	96.0
67.5°	98.1	92.2	81.5	71.0	71.8	71.0	81.0	91.8	98.1	91.8	81.0
70°	83.5	76.0	66.0	58.5	60.1	58.5	66.0	76.5	84.0	76.5	66.0
72.5°	69.3	61.0	53.5	47.6	49.6	47.1	53.5	61.4	70.2	61.4	53.5
75°	56.0	49.3	41.3	38.0	41.3	38.0	41.8	49.7	57.2	49.7	41.8
77.5°	50.3	41.9	32.1	29.6	33.0	29.6	32.6	40.6	48.6	40.6	32.6
80°	49.4	41.4	26.0	23.0	24.6	23.0	25.1	34.3	41.1	34.3	25.1
82.5°	52.6	46.1	27.1	16.3	17.1	16.3	21.7	30.2	35.8	30.2	21.7
85°	60.4	56.0	34.3	13.5	9.6	12.6	21.5	29.0	31.7	29.0	21.5
87.5°	72.1	69.0	44.5	17.6	2.5	11.3	19.4	26.6	26.6	26.6	19.4
90°	85.1	82.4	58.0	24.3	0.4	7.6	14.2	20.2	18.9	20.2	14.2
92.5°	102.0	98.5	71.8	34.7	7.1	4.2	11.3	16.7	15.5	16.7	11.3
95°	116.8	114.9	87.4	45.9	17.7	1.7	8.0	12.6	12.2	12.6	8.0
97.5°	133.7	130.6	103.5	61.8	31.4	5.3	6.0	9.2	10.1	9.2	6.0
100°	147.6	146.3	120.9	80.8	48.1	14.6	3.9	7.7	8.5	7.7	3.9
102.5°	170.2	164.1	138.2	98.9	66.2	27.4	6.6	5.2	6.0	5.2	6.6
105°	189.8	183.5	159.7	117.8	86.9	44.5	17.2	6.1	3.9	6.1	17.2
107.5°	208.6	204.2	180.0	137.2	109.1	64.4	33.0	17.2	11.0	17.2	33.0
110°	230.7	225.4	199.0	157.5	132.0	86.5	50.2	31.3	24.2	31.3	50.2



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CATALOG NUMBER: MWL-2-18-13-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	247.9	216.7	177.8	156.6	109.4	71.4	49.0	42.3	49.0	71.4
115°	268.2	266.0	237.0	196.8	178.7	135.4	94.8	69.6	61.7	69.6	94.8
117.5°	285.4	285.0	252.0	216.2	205.1	158.9	116.5	90.4	82.0	90.4	116.5
120°	307.1	303.6	272.7	235.6	230.3	183.5	140.2	114.2	105.9	114.2	140.2
122.5°	322.1	319.9	290.4	254.1	254.1	208.6	163.3	137.1	128.4	137.1	163.3
125°	335.8	334.9	303.6	272.7	279.8	232.1	188.8	162.3	152.6	162.3	188.8
127.5°	348.2	349.5	320.7	293.0	305.7	255.8	214.0	184.8	174.7	184.8	214.0
130°	358.7	363.2	337.1	311.5	330.5	281.9	236.5	207.4	200.7	207.4	236.5
132.5°	379.4	376.8	353.9	330.5	357.0	305.7	260.3	229.9	222.4	229.9	260.3
135°	390.0	391.0	368.4	346.8	381.7	329.6	282.9	252.7	245.2	252.7	282.9
137.5°	402.9	400.2	379.9	366.6	404.6	352.6	304.9	277.1	265.2	277.1	304.9
140°	412.1	411.7	394.9	384.3	429.3	375.1	327.4	299.2	288.0	299.2	327.4
142.5°	421.8	424.5	409.9	403.7	454.0	398.8	351.6	320.7	310.2	320.7	351.6
145°	428.5	434.1	424.9	428.0	477.4	425.4	372.9	341.5	330.1	341.5	372.9
147.5°	439.5	447.0	435.9	445.3	497.7	448.8	394.0	363.2	353.0	363.2	394.0
150°	454.5	458.0	451.4	469.0	518.5	474.8	415.7	383.8	373.7	383.8	415.7
152.5°	466.4	470.8	463.3	495.0	534.7	498.7	439.5	404.2	392.3	404.2	439.5
155°	478.8	480.5	475.2	520.2	552.0	522.0	458.5	426.6	415.2	426.6	458.5
157.5°	490.2	493.8	487.5	539.2	567.0	542.2	480.0	449.1	439.0	449.1	480.0
160°	502.6	502.6	506.2	561.3	579.4	559.9	503.1	473.9	459.8	473.9	503.1
162.5°	503.9	512.3	531.3	576.8	591.3	575.4	527.7	491.6	479.2	491.6	527.7
165°	523.3	530.9	559.5	590.4	600.5	589.1	558.2	520.7	506.2	520.7	558.2
167.5°	543.6	559.5	582.5	605.8	609.4	601.9	581.6	555.5	542.2	555.5	581.6
170°	576.8	590.4	601.9	611.6	616.5	612.1	596.2	583.3	575.0	583.3	596.2
172.5°	602.7	611.6	616.0	622.2	619.1	617.3	609.4	603.2	598.8	603.2	609.4
175°	619.1	620.9	624.8	622.6	625.3	620.4	620.9	624.0	605.8	624.0	620.9
177.5°	624.8	627.8	625.7	621.7	622.2	621.3	623.0	624.8	622.2	624.8	623.0
180°	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8



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CATALOG NUMBER: MWL-2-18-13-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	482.8	482.8	482.8	482.8	482.8	482.8
2.5°	481.5	481.2	482.0	483.2	482.4	481.5
5°	479.0	478.2	479.0	480.7	479.9	478.1
7.5°	474.4	474.0	474.9	476.1	476.1	475.2
10°	469.0	467.8	469.4	470.3	470.3	469.8
12.5°	461.5	460.2	461.5	462.3	463.6	464.0
15°	453.5	451.8	454.0	454.0	454.4	455.4
17.5°	443.5	442.7	443.5	444.0	444.4	445.3
20°	431.4	431.4	431.8	433.2	433.2	432.8
22.5°	420.6	419.7	421.0	420.7	419.8	419.8
25°	407.2	407.2	407.6	406.9	405.6	405.6
27.5°	393.5	393.1	393.9	392.7	389.8	388.9
30°	378.5	378.8	379.3	377.3	373.1	371.4
32.5°	362.6	363.4	363.5	358.9	353.1	350.6
35°	344.6	345.5	345.9	339.3	331.8	329.3
37.5°	326.3	329.2	327.6	317.6	309.3	308.4
40°	307.1	310.8	308.1	293.4	287.6	289.2
42.5°	285.4	292.5	286.3	270.4	266.7	269.2
45°	262.1	271.6	262.9	247.1	247.9	250.4
47.5°	237.8	251.6	238.2	226.3	228.8	232.9
50°	213.2	223.7	214.1	207.1	212.1	213.7
52.5°	190.7	195.3	191.6	188.2	195.4	197.9
55°	168.6	164.0	169.5	169.8	179.1	180.7
57.5°	145.2	137.3	146.1	152.3	162.3	164.0
60°	123.6	117.3	124.0	133.6	146.1	147.7
62.5°	101.8	98.5	102.3	114.4	128.6	131.9
65°	85.2	83.5	85.6	96.5	109.8	114.0
67.5°	71.0	71.8	71.0	81.5	92.2	98.1
70°	58.5	60.1	58.5	66.0	76.0	83.5
72.5°	47.1	49.6	47.6	53.5	61.0	69.3
75°	38.0	41.3	38.0	41.3	49.3	56.0
77.5°	29.6	33.0	29.6	32.1	41.9	50.3
80°	23.0	24.6	23.0	26.0	41.4	49.4
82.5°	16.3	17.1	16.3	27.1	46.1	52.6
85°	12.6	9.6	13.5	34.3	56.0	60.4
87.5°	11.3	2.5	17.6	44.5	69.0	72.1
90°	7.6	0.4	24.3	58.0	82.4	85.1
92.5°	4.2	7.1	34.7	71.8	98.5	102.0
95°	1.7	17.7	45.9	87.4	114.9	116.8
97.5°	5.3	31.4	61.8	103.5	130.6	133.7
100°	14.6	48.1	80.8	120.9	146.3	147.6
102.5°	27.4	66.2	98.9	138.2	164.1	170.2
105°	44.5	86.9	117.8	159.7	183.5	189.8
107.5°	64.4	109.1	137.2	180.0	204.2	208.6
110°	86.5	132.0	157.5	199.0	225.4	230.7



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CATALOG NUMBER: MWL-2-18-13-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	247.9	252.0
115°	135.4	178.7	196.8	237.0	266.0	268.2
117.5°	158.9	205.1	216.2	252.0	285.0	285.4
120°	183.5	230.3	235.6	272.7	303.6	307.1
122.5°	208.6	254.1	254.1	290.4	319.9	322.1
125°	232.1	279.8	272.7	303.6	334.9	335.8
127.5°	255.8	305.7	293.0	320.7	349.5	348.2
130°	281.9	330.5	311.5	337.1	363.2	358.7
132.5°	305.7	357.0	330.5	353.9	376.8	379.4
135°	329.6	381.7	346.8	368.4	391.0	390.0
137.5°	352.6	404.6	366.6	379.9	400.2	402.9
140°	375.1	429.3	384.3	394.9	411.7	412.1
142.5°	398.8	454.0	403.7	409.9	424.5	421.8
145°	425.4	477.4	428.0	424.9	434.1	428.5
147.5°	448.8	497.7	445.3	435.9	447.0	439.5
150°	474.8	518.5	469.0	451.4	458.0	454.5
152.5°	498.7	534.7	495.0	463.3	470.8	466.4
155°	522.0	552.0	520.2	475.2	480.5	478.8
157.5°	542.2	567.0	539.2	487.5	493.8	490.2
160°	559.9	579.4	561.3	506.2	502.6	502.6
162.5°	575.4	591.3	576.8	531.3	512.3	503.9
165°	589.1	600.5	590.4	559.5	530.9	523.3
167.5°	601.9	609.4	605.8	582.5	559.5	543.6
170°	612.1	616.5	611.6	601.9	590.4	576.8
172.5°	617.3	619.1	622.2	616.0	611.6	602.7
175°	620.4	625.3	622.6	624.8	620.9	619.1
177.5°	621.3	622.2	621.7	625.7	627.8	624.8
180°	624.8	624.8	624.8	624.8	624.8	624.8

(END OF REPORT)