

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: P392476

Luminaire Tested: **MWL-2-13-17-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392476
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-2-13-17-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2582.6 lumens
Efficiency: N/A
Efficacy: 89.7 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

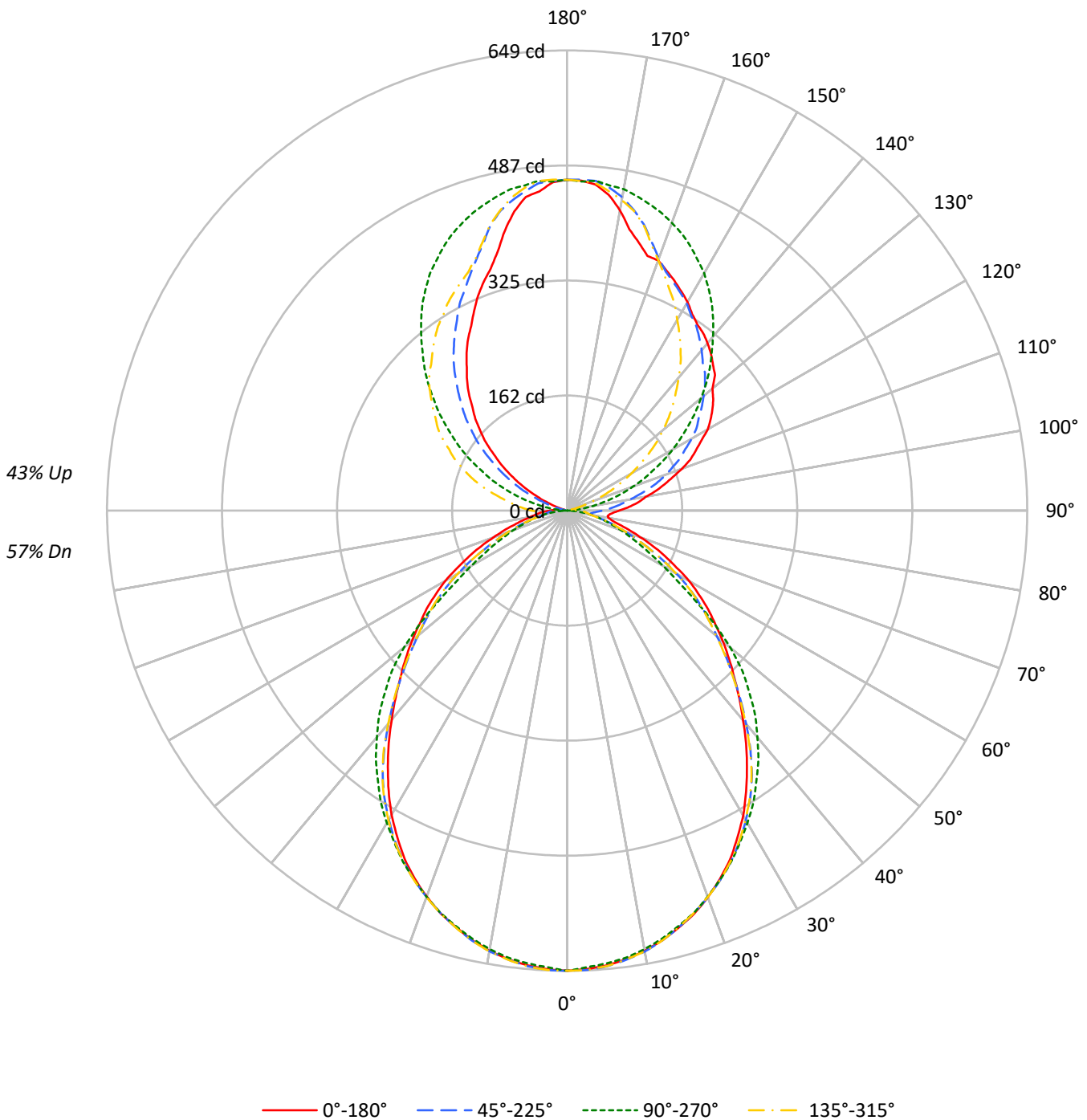
Input Watts (W): 28.785
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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CATALOG NUMBER: MWL-2-13-17-UNV-L935-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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	57
1	100	95	91	88	93	89	86	83	77	74	72	66	64	62	56	54	53	48
2	91	84	78	73	85	78	73	69	68	64	60	58	55	53	49	47	46	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	42	39	35
4	77	66	58	52	71	62	55	49	54	49	44	47	42	39	40	37	34	31
5	70	59	51	45	65	55	48	43	48	43	38	42	38	34	36	33	30	27
6	65	53	45	39	60	50	43	37	44	38	34	38	34	30	33	29	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21
8	56	44	36	31	52	41	34	29	37	31	27	32	27	24	28	24	22	19
9	52	40	33	28	49	38	31	26	34	28	24	30	25	22	26	22	20	17
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	8383	8383	8383	8383
5°	8198	7643	8198	7643
10°	7974	7003	7974	7003
15°	7709	6397	7697	6397
20°	7414	5840	7403	5840
25°	7059	5317	7044	5317
30°	6612	4810	6594	4810
35°	6084	4315	6069	4315
40°	5542	3825	5524	3825
45°	5039	3323	5022	3323
50°	4614	2751	4596	2751
55°	4214	2037	4202	2037
60°	3780	1477	3772	1477
65°	3211	1092	3211	1092
70°	2640	814	2649	814
75°	2128	575	2156	575
80°	2008	376	1797	376
85°	2643	163	1709	163



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.0	2.4
10°-20°	171.4	6.6
20°-30°	250.7	9.7
30°-40°	282.9	11.0
40°-50°	262.5	10.2
50°-60°	206.3	8.0
60°-70°	130.3	5.0
70°-80°	64.9	2.5
80°-90°	35.5	1.4
90°-100°	41.1	1.6
100°-110°	72.3	2.8
110°-120°	124.0	4.8
120°-130°	168.3	6.5
130°-140°	191.9	7.4
140°-150°	191.7	7.4
150°-160°	166.9	6.5
160°-170°	117.3	4.5
170°-180°	43.7	1.7
0°-30°	483.1	18.7
0°-40°	766.0	29.7
0°-60°	1234.8	47.8
0°-90°	1465.5	56.7
90°-120°	237.4	9.2
90°-150°	789.3	30.6
90°-180°	1117.0	43.3
0°-180°	2582.6	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	649	649	649	649	649	
5°	644	641	644	641	644	61
15°	609	607	608	607	609	172
25°	543	547	542	547	543	249
35°	442	465	441	465	442	276
45°	333	364	332	364	333	258
55°	243	220	242	220	243	217
65°	152	112	152	112	152	151
75°	76	54	77	54	76	84
85°	60	14	39	14	60	49
90°	73	0	24	0	73	41
95°	94	13	16	13	94	81
105°	142	66	3	66	142	150
115°	200	133	46	133	200	199
125°	250	209	114	209	250	224
135°	291	284	183	284	291	225
145°	320	356	247	356	320	202
155°	358	411	310	411	358	165
165°	391	448	378	448	391	111
175°	461	467	452	467	461	43
180°	466	466	466	466	466	



TEST NUMBER: P392476

CATALOG NUMBER: MWL-2-13-17-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	649.0	649.0	649.0	649.0	649.0	649.0	649.0	649.0	649.0	649.0	649.0
2.5°	647.2	647.8	648.5	646.2	644.6	646.0	648.5	647.8	647.5	647.8	648.5
5°	643.8	644.5	645.1	642.6	641.0	642.6	644.8	644.5	643.8	644.5	644.8
7.5°	638.3	639.0	639.0	637.6	636.0	637.3	638.6	638.6	638.3	638.6	638.6
10°	630.3	631.5	631.5	629.8	628.1	629.5	631.1	630.8	630.3	630.8	631.1
12.5°	620.9	621.5	621.1	619.5	618.3	619.5	621.1	620.8	620.3	620.8	621.1
15°	608.7	608.9	608.6	607.7	606.6	607.4	608.3	608.3	607.7	608.3	608.3
17.5°	596.2	595.6	595.2	595.7	594.9	595.7	594.9	595.2	595.2	595.2	594.9
20°	580.3	580.9	580.2	580.7	579.5	580.4	579.9	580.2	579.4	580.2	579.9
22.5°	562.5	563.4	564.3	564.1	563.7	563.7	564.1	562.7	561.8	562.7	564.1
25°	543.4	544.1	546.4	546.6	547.0	546.2	545.7	543.2	542.3	543.2	545.7
27.5°	520.0	523.3	526.4	527.7	527.8	527.3	525.7	522.3	518.9	522.3	525.7
30°	496.6	499.1	504.1	508.8	508.7	508.2	503.2	498.2	495.3	498.2	503.2
32.5°	469.9	473.3	480.8	487.1	488.9	486.4	479.8	471.9	468.6	471.9	479.8
35°	442.1	443.7	454.6	462.9	465.3	461.9	453.5	442.8	441.0	442.8	453.5
37.5°	414.5	413.7	424.5	439.6	443.1	438.5	423.5	412.7	413.5	412.7	423.5
40°	386.1	384.5	392.8	412.6	417.2	411.9	391.5	383.1	384.9	383.1	391.5
42.5°	359.5	357.8	361.6	384.2	393.0	383.5	360.6	356.5	358.1	356.5	360.6
45°	333.3	330.7	331.6	351.6	363.8	350.9	330.2	329.7	332.2	329.7	330.2
47.5°	309.9	305.7	303.2	317.9	335.4	317.5	301.8	304.7	308.9	304.7	301.8
50°	286.6	282.3	275.7	286.2	300.0	285.5	274.3	281.0	285.5	281.0	274.3
52.5°	263.2	260.7	251.2	256.2	260.9	255.5	250.2	259.3	262.1	259.3	250.2
55°	242.8	239.5	227.8	225.8	219.6	225.1	226.8	238.5	242.1	238.5	226.8
57.5°	220.3	218.6	204.4	194.9	183.7	194.2	203.4	217.6	219.6	217.6	203.4
60°	199.1	194.9	178.2	164.6	156.2	164.2	177.6	194.2	198.7	194.2	177.6
62.5°	174.0	171.5	153.2	136.2	132.5	135.8	152.6	170.9	173.7	170.9	152.6
65°	152.0	147.0	128.7	113.6	112.4	113.3	128.3	146.7	152.0	146.7	128.3
67.5°	131.2	122.8	107.0	94.1	94.9	94.1	106.7	122.4	131.2	122.4	106.7
70°	109.9	100.8	88.3	77.4	80.8	77.4	88.3	101.1	110.3	101.1	88.3
72.5°	92.4	81.6	71.6	63.3	66.3	62.9	71.6	82.0	93.1	82.0	71.6
75°	75.8	64.9	56.3	50.4	54.5	50.4	56.6	65.2	76.8	65.2	56.6
77.5°	65.0	54.5	42.9	40.4	43.7	40.4	43.2	53.6	63.8	53.6	43.2
80°	58.9	50.0	33.9	30.4	33.7	30.4	33.2	44.7	52.7	44.7	33.2
82.5°	57.6	51.3	32.8	21.2	22.9	21.2	28.9	39.5	45.1	39.5	28.9
85°	60.3	55.4	35.9	17.2	13.7	16.5	26.3	35.3	39.0	35.3	26.3
87.5°	65.5	63.3	41.2	18.8	3.4	14.2	22.4	31.8	31.6	31.8	22.4
90°	73.3	72.5	49.7	22.3	0.3	9.8	17.2	26.2	24.0	26.2	17.2
92.5°	83.6	82.1	59.4	27.5	5.3	4.8	14.3	21.4	19.2	21.4	14.3
95°	94.0	92.8	69.4	35.0	13.2	2.2	10.2	16.5	16.0	16.5	10.2
97.5°	104.2	102.5	78.8	46.1	23.4	3.9	6.2	12.2	12.2	12.2	6.2
100°	112.9	111.7	90.3	60.1	35.8	10.9	3.2	8.5	9.3	8.5	3.2
102.5°	128.2	122.6	103.7	73.7	49.3	20.4	5.8	4.3	6.0	4.3	5.8
105°	141.5	136.9	119.9	88.6	65.6	34.1	13.7	4.7	3.2	4.7	13.7
107.5°	155.7	152.4	134.4	103.0	82.1	48.8	24.9	13.0	8.5	13.0	24.9
110°	172.1	168.1	148.4	117.5	99.1	64.5	37.6	23.6	18.3	23.6	37.6



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CATALOG NUMBER: MWL-2-13-17-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	187.9	184.9	161.6	132.6	116.9	81.7	53.4	36.6	31.7	36.6	53.4
115°	200.1	198.4	176.7	146.8	133.3	101.1	70.8	52.1	46.3	52.1	70.8
117.5°	212.9	212.5	187.9	161.3	153.0	118.6	87.0	67.6	61.4	67.6	87.0
120°	228.9	226.3	203.3	175.7	171.8	136.9	104.8	85.3	79.1	85.3	104.8
122.5°	240.1	238.6	216.5	189.6	189.6	155.7	121.8	102.3	95.9	102.3	121.8
125°	250.3	249.7	226.3	203.3	208.6	173.1	140.8	121.2	113.9	121.2	140.8
127.5°	259.6	260.6	239.1	218.4	228.1	190.8	159.6	137.9	130.3	137.9	159.6
130°	267.4	270.8	251.3	232.3	246.4	210.3	176.4	154.7	149.8	154.7	176.4
132.5°	282.9	281.0	263.9	246.4	266.2	228.1	194.2	171.5	165.8	171.5	194.2
135°	290.8	291.5	274.7	258.6	284.5	245.8	210.9	188.5	183.0	188.5	210.9
137.5°	300.3	298.4	283.2	273.4	301.7	262.8	227.4	206.6	197.8	206.6	227.4
140°	308.1	307.7	295.2	286.6	320.0	279.6	245.0	223.8	215.7	223.8	245.0
142.5°	315.3	317.2	306.4	301.0	338.4	297.4	263.0	240.0	232.1	240.0	263.0
145°	320.2	324.5	317.5	319.9	355.9	317.9	278.8	255.5	246.9	255.5	278.8
147.5°	328.4	334.0	325.8	332.7	371.0	335.3	294.6	271.6	264.0	271.6	294.6
150°	339.6	342.2	337.3	350.4	386.5	354.7	310.7	287.0	279.4	287.0	310.7
152.5°	348.5	351.8	346.2	369.9	398.6	372.4	328.4	302.1	293.3	302.1	328.4
155°	357.7	359.1	355.0	388.6	411.4	389.9	342.6	318.9	310.4	318.9	342.6
157.5°	366.2	368.9	364.3	402.7	422.6	405.0	358.7	335.7	328.1	335.7	358.7
160°	375.4	375.4	378.0	418.3	431.8	417.4	375.8	354.1	343.6	354.1	375.8
162.5°	376.5	382.6	396.8	429.9	440.7	428.9	394.2	367.3	358.0	367.3	394.2
165°	390.9	396.5	417.9	440.1	447.6	439.0	416.9	388.9	378.0	388.9	416.9
167.5°	406.0	417.9	434.1	451.6	454.1	448.5	433.4	415.0	405.0	415.0	433.4
170°	429.9	440.9	448.5	456.6	460.3	457.0	444.3	435.6	428.5	435.6	444.3
172.5°	449.2	455.8	459.1	464.5	462.3	460.9	454.1	449.6	446.3	449.6	454.1
175°	461.4	462.8	466.5	464.8	466.8	463.3	463.5	465.0	451.6	465.0	463.5
177.5°	465.7	468.0	467.2	464.2	464.5	463.9	465.2	465.7	463.6	465.7	465.2
180°	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5	466.5



TEST NUMBER: P392476

CATALOG NUMBER: MWL-2-13-17-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	649.0	649.0	649.0	649.0	649.0	649.0
2.5°	646.0	644.6	646.2	648.5	647.8	647.2
5°	642.6	641.0	642.6	645.1	644.5	643.8
7.5°	637.3	636.0	637.6	639.0	639.0	638.3
10°	629.5	628.1	629.8	631.5	631.5	630.3
12.5°	619.5	618.3	619.5	621.1	621.5	620.9
15°	607.4	606.6	607.7	608.6	608.9	608.7
17.5°	595.7	594.9	595.7	595.2	595.6	596.2
20°	580.4	579.5	580.7	580.2	580.9	580.3
22.5°	563.7	563.7	564.1	564.3	563.4	562.5
25°	546.2	547.0	546.6	546.4	544.1	543.4
27.5°	527.3	527.8	527.7	526.4	523.3	520.0
30°	508.2	508.7	508.8	504.1	499.1	496.6
32.5°	486.4	488.9	487.1	480.8	473.3	469.9
35°	461.9	465.3	462.9	454.6	443.7	442.1
37.5°	438.5	443.1	439.6	424.5	413.7	414.5
40°	411.9	417.2	412.6	392.8	384.5	386.1
42.5°	383.5	393.0	384.2	361.6	357.8	359.5
45°	350.9	363.8	351.6	331.6	330.7	333.3
47.5°	317.5	335.4	317.9	303.2	305.7	309.9
50°	285.5	300.0	286.2	275.7	282.3	286.6
52.5°	255.5	260.9	256.2	251.2	260.7	263.2
55°	225.1	219.6	225.8	227.8	239.5	242.8
57.5°	194.2	183.7	194.9	204.4	218.6	220.3
60°	164.2	156.2	164.6	178.2	194.9	199.1
62.5°	135.8	132.5	136.2	153.2	171.5	174.0
65°	113.3	112.4	113.6	128.7	147.0	152.0
67.5°	94.1	94.9	94.1	107.0	122.8	131.2
70°	77.4	80.8	77.4	88.3	100.8	109.9
72.5°	62.9	66.3	63.3	71.6	81.6	92.4
75°	50.4	54.5	50.4	56.3	64.9	75.8
77.5°	40.4	43.7	40.4	42.9	54.5	65.0
80°	30.4	33.7	30.4	33.9	50.0	58.9
82.5°	21.2	22.9	21.2	32.8	51.3	57.6
85°	16.5	13.7	17.2	35.9	55.4	60.3
87.5°	14.2	3.4	18.8	41.2	63.3	65.5
90°	9.8	0.3	22.3	49.7	72.5	73.3
92.5°	4.8	5.3	27.5	59.4	82.1	83.6
95°	2.2	13.2	35.0	69.4	92.8	94.0
97.5°	3.9	23.4	46.1	78.8	102.5	104.2
100°	10.9	35.8	60.1	90.3	111.7	112.9
102.5°	20.4	49.3	73.7	103.7	122.6	128.2
105°	34.1	65.6	88.6	119.9	136.9	141.5
107.5°	48.8	82.1	103.0	134.4	152.4	155.7
110°	64.5	99.1	117.5	148.4	168.1	172.1



TEST NUMBER: P392476

CATALOG NUMBER: MWL-2-13-17-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	81.7	116.9	132.6	161.6	184.9	187.9
115°	101.1	133.3	146.8	176.7	198.4	200.1
117.5°	118.6	153.0	161.3	187.9	212.5	212.9
120°	136.9	171.8	175.7	203.3	226.3	228.9
122.5°	155.7	189.6	189.6	216.5	238.6	240.1
125°	173.1	208.6	203.3	226.3	249.7	250.3
127.5°	190.8	228.1	218.4	239.1	260.6	259.6
130°	210.3	246.4	232.3	251.3	270.8	267.4
132.5°	228.1	266.2	246.4	263.9	281.0	282.9
135°	245.8	284.5	258.6	274.7	291.5	290.8
137.5°	262.8	301.7	273.4	283.2	298.4	300.3
140°	279.6	320.0	286.6	295.2	307.7	308.1
142.5°	297.4	338.4	301.0	306.4	317.2	315.3
145°	317.9	355.9	319.9	317.5	324.5	320.2
147.5°	335.3	371.0	332.7	325.8	334.0	328.4
150°	354.7	386.5	350.4	337.3	342.2	339.6
152.5°	372.4	398.6	369.9	346.2	351.8	348.5
155°	389.9	411.4	388.6	355.0	359.1	357.7
157.5°	405.0	422.6	402.7	364.3	368.9	366.2
160°	417.4	431.8	418.3	378.0	375.4	375.4
162.5°	428.9	440.7	429.9	396.8	382.6	376.5
165°	439.0	447.6	440.1	417.9	396.5	390.9
167.5°	448.5	454.1	451.6	434.1	417.9	406.0
170°	457.0	460.3	456.6	448.5	440.9	429.9
172.5°	460.9	462.3	464.5	459.1	455.8	449.2
175°	463.3	466.8	464.8	466.5	462.8	461.4
177.5°	463.9	464.5	464.2	467.2	468.0	465.7
180°	466.5	466.5	466.5	466.5	466.5	466.5

(END OF REPORT)