

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: P392504

Luminaire Tested: **MWL-2-22-13-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392504
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-2-22-13-UNV-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

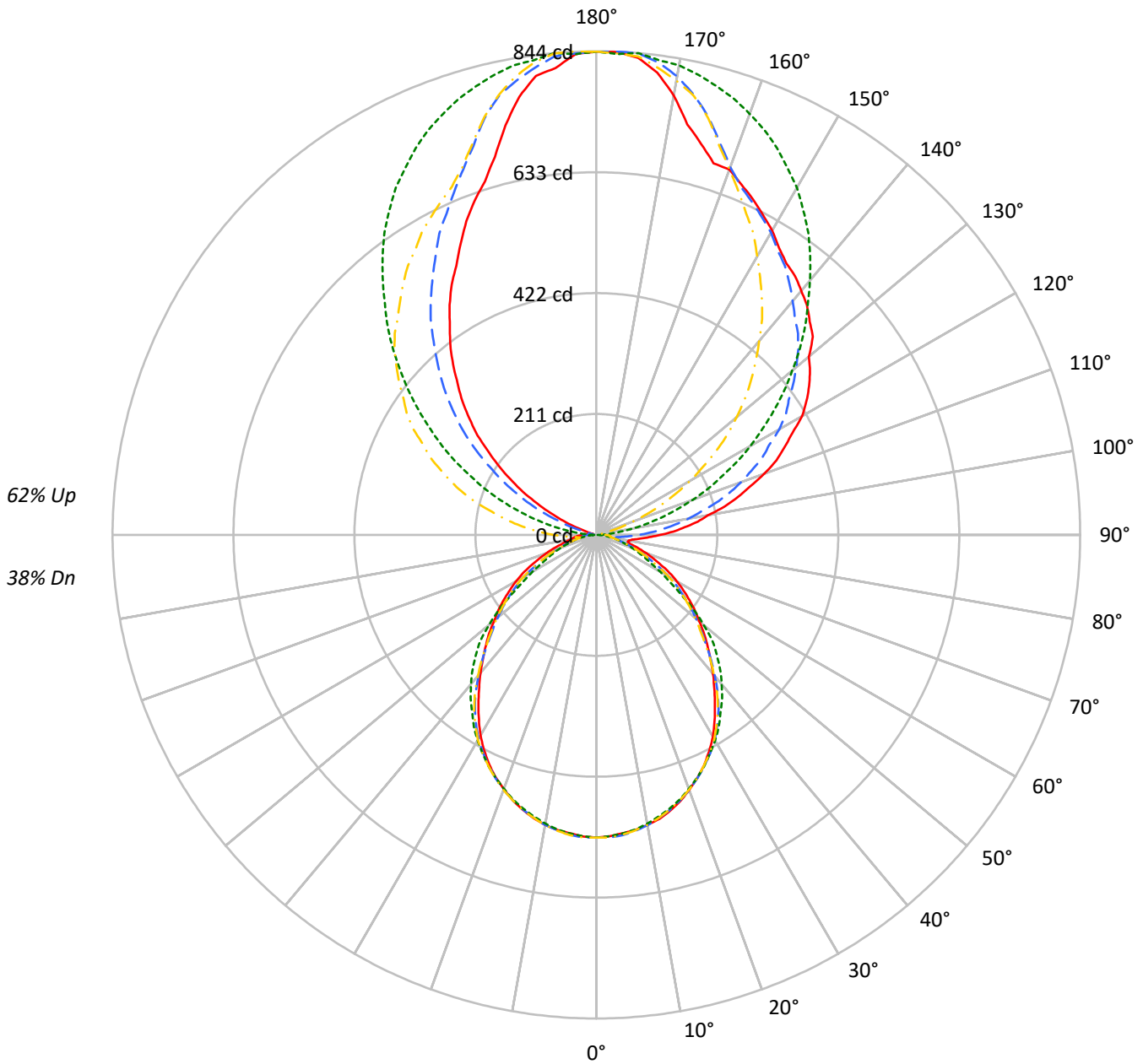
Lumens per Lamp: N/A
Luminaire Lumens: 3216.2 lumens
Efficiency: N/A
Efficacy: 95.1 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

Input Watts (W): 33.835
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



— 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	104	104	104	104	94	94	94	94	76	76	76	60	60	60	45	45	45	38
1	95	91	87	84	86	83	79	76	67	65	63	53	51	50	40	39	38	32
2	87	80	74	69	78	72	67	63	59	55	52	47	44	42	35	34	32	27
3	79	70	63	58	72	64	58	53	52	48	44	41	38	36	31	29	28	23
4	73	62	55	49	66	57	50	45	47	42	38	37	34	31	28	26	24	20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	26	23	21	18
6	61	50	42	36	56	46	39	34	38	33	29	30	27	24	23	21	19	16
7	57	45	37	32	51	41	34	30	34	29	25	28	24	21	21	19	17	14
8	53	41	33	28	48	37	31	26	31	26	22	25	21	19	20	17	15	13
9	49	37	30	25	45	34	28	23	29	24	20	23	20	17	18	16	14	11
10	46	34	27	22	42	31	25	21	26	21	18	21	18	15	17	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	6821	6821	6821	6821
5°	6655	6238	6655	6238
10°	6500	5705	6500	5705
15°	6311	5211	6288	5211
20°	6052	4753	6029	4753
25°	5766	4327	5744	4327
30°	5412	3917	5381	3917
35°	4959	3503	4935	3503
40°	4545	3118	4511	3118
45°	4144	2715	4118	2715
50°	3769	2243	3740	2243
55°	3436	1665	3416	1665
60°	3072	1215	3062	1215
65°	2636	888	2636	888
70°	2195	664	2210	664
75°	1721	478	1772	478
80°	1947	302	1558	302
85°	3300	128	1600	128



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.7	1.5
10°-20°	139.7	4.3
20°-30°	204.4	6.4
30°-40°	230.8	7.2
40°-50°	214.6	6.7
50°-60°	168.6	5.2
60°-70°	107.0	3.3
70°-80°	53.7	1.7
80°-90°	37.8	1.2
90°-100°	65.2	2.0
100°-110°	129.7	4.0
110°-120°	224.2	7.0
120°-130°	304.4	9.5
130°-140°	347.2	10.8
140°-150°	346.3	10.8
150°-160°	301.6	9.4
160°-170°	212.2	6.6
170°-180°	79.0	2.5
0°-30°	393.8	12.2
0°-40°	624.6	19.4
0°-60°	1007.8	31.3
0°-90°	1206.4	37.5
90°-120°	419.0	13.0
90°-150°	1417.0	44.1
90°-180°	2010.0	62.5
0°-180°	3216.2	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	528	528	528	528	528	
5°	523	523	523	523	523	50
15°	498	494	496	494	498	140
25°	444	445	442	445	444	204
35°	360	378	359	378	360	226
45°	274	297	272	297	274	212
55°	198	180	197	180	198	177
65°	125	91	125	91	125	124
75°	61	45	63	45	61	71
85°	75	11	36	11	75	58
90°	111	1	22	1	111	61
95°	155	24	14	24	155	136
105°	256	117	5	117	256	270
115°	362	241	83	241	362	359
125°	453	378	206	378	453	405
135°	526	515	331	515	526	406
145°	578	644	445	644	578	365
155°	646	745	560	745	646	298
165°	706	811	683	811	706	200
175°	836	844	818	844	836	78
180°	843	843	843	843	843	



TEST NUMBER: P392504

CATALOG NUMBER: MWL-2-22-13-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1	528.1
2.5°	526.3	527.4	528.6	527.4	526.5	526.8	528.6	527.4	526.9	527.4	528.6
5°	522.6	524.7	525.9	524.1	523.2	524.1	525.3	524.7	522.6	524.7	525.3
7.5°	519.6	520.8	520.8	519.5	518.6	519.0	520.1	520.1	519.6	520.1	520.1
10°	513.8	514.4	514.4	513.5	511.7	512.9	513.8	513.2	513.8	513.2	513.8
12.5°	507.7	507.1	505.6	504.7	503.2	504.7	505.6	505.9	506.5	505.9	505.6
15°	498.3	497.1	496.5	496.5	494.1	495.9	495.9	495.9	496.5	495.9	495.9
17.5°	487.3	486.2	485.5	485.0	484.1	485.0	485.0	485.5	485.5	485.5	485.0
20°	473.7	474.0	473.7	472.2	471.6	471.6	473.1	472.8	471.9	472.8	473.1
22.5°	459.4	459.4	460.0	460.4	458.8	459.7	459.5	458.2	458.2	458.2	459.5
25°	443.9	443.9	445.2	445.8	445.2	445.2	444.0	442.2	442.2	442.2	444.0
27.5°	425.7	426.6	429.7	430.9	429.7	430.3	428.5	424.8	423.9	424.8	428.5
30°	406.5	408.4	412.9	415.1	414.2	413.9	411.2	406.6	404.2	406.6	411.2
32.5°	383.8	386.5	392.9	397.8	397.5	396.6	391.1	384.1	381.4	384.1	391.1
35°	360.4	363.2	371.4	378.7	377.7	376.8	369.5	361.3	358.6	361.3	369.5
37.5°	337.7	338.6	347.7	358.6	360.2	356.8	345.9	336.7	335.8	336.7	345.9
40°	316.7	314.9	321.3	337.0	340.1	335.8	318.9	312.5	314.3	312.5	318.9
42.5°	294.8	292.1	296.0	313.3	320.1	312.1	294.3	289.7	292.5	289.7	294.3
45°	274.1	271.4	270.5	287.8	297.3	286.6	268.1	269.7	272.4	269.7	268.1
47.5°	255.0	250.5	247.7	260.8	275.4	260.2	245.4	248.7	253.3	248.7	245.4
50°	234.1	232.2	226.8	234.4	244.7	233.2	224.4	229.9	232.3	229.9	224.4
52.5°	216.8	214.0	206.2	209.8	213.7	208.6	204.4	211.6	215.0	211.6	204.4
55°	198.0	196.2	186.1	185.5	179.5	184.3	184.3	194.3	196.8	194.3	184.3
57.5°	179.8	177.9	167.0	160.0	150.3	158.8	165.2	176.1	178.6	176.1	165.2
60°	161.8	160.0	146.3	135.8	128.5	135.1	145.1	158.8	161.3	158.8	145.1
62.5°	144.5	140.9	125.4	112.1	107.8	111.4	124.2	139.7	144.0	139.7	124.2
65°	124.8	120.3	105.7	93.8	91.4	93.2	105.0	119.6	124.8	119.6	105.0
67.5°	107.5	101.1	89.3	77.7	78.6	77.7	88.7	100.5	107.5	100.5	88.7
70°	91.4	83.2	72.3	64.1	65.9	64.1	72.3	83.8	92.0	83.8	72.3
72.5°	75.9	66.8	58.6	52.2	54.4	51.7	58.6	67.4	77.1	67.4	58.6
75°	61.3	54.0	45.3	41.6	45.3	41.6	45.8	54.7	63.1	54.7	45.8
77.5°	56.0	46.4	35.3	32.5	36.2	32.5	35.8	44.6	53.7	44.6	35.8
80°	57.1	47.5	28.8	25.2	27.1	25.2	27.6	37.9	45.7	37.9	27.6
82.5°	63.1	55.1	31.4	17.9	18.9	17.9	24.2	33.6	40.5	33.6	24.2
85°	75.3	69.3	41.7	15.1	10.7	13.9	24.5	33.0	36.5	33.0	24.5
87.5°	92.2	87.7	56.3	21.3	2.7	13.0	22.3	30.5	30.8	30.5	22.3
90°	110.9	106.7	75.1	31.2	0.6	8.5	16.0	22.7	21.5	22.7	16.0
92.5°	134.3	129.0	94.3	45.9	9.6	4.8	12.8	18.8	17.6	18.8	12.8
95°	154.8	152.2	116.3	62.0	23.9	2.4	9.1	13.9	13.7	13.9	9.1
97.5°	178.3	174.4	138.9	83.4	42.3	7.1	7.2	10.6	11.5	10.6	7.2
100°	197.9	196.4	163.0	109.1	65.0	19.7	5.1	9.3	10.2	9.3	5.1
102.5°	229.1	221.0	186.5	133.5	89.4	36.9	8.9	6.6	7.5	6.6	8.9
105°	255.9	247.5	215.7	159.1	117.3	60.1	23.2	8.0	5.1	8.0	23.2
107.5°	281.5	275.6	242.8	185.3	147.1	87.0	44.4	23.0	14.6	23.0	44.4
110°	311.3	304.1	268.4	212.4	178.1	116.5	67.6	42.0	32.5	42.0	67.6



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CATALOG NUMBER: MWL-2-22-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	339.9	334.6	292.3	239.8	211.2	147.5	96.2	65.9	56.9	65.9	96.2
115°	362.0	359.0	319.6	265.4	241.0	182.6	127.8	93.8	83.1	93.8	127.8
117.5°	385.2	384.6	339.9	291.6	276.8	214.2	157.0	121.8	110.5	121.8	157.0
120°	414.4	409.6	367.9	317.9	310.7	247.5	189.1	154.1	142.7	154.1	189.1
122.5°	434.7	431.7	391.8	342.8	342.8	281.5	220.1	185.0	173.1	185.0	220.1
125°	453.1	451.9	409.6	367.9	377.5	313.1	254.7	218.9	205.8	218.9	254.7
127.5°	469.8	471.6	432.9	395.3	412.6	345.3	288.6	249.4	235.6	249.4	288.6
130°	484.1	490.1	454.9	420.4	446.0	380.4	319.1	279.7	270.8	279.7	319.1
132.5°	512.1	508.5	477.5	446.0	481.7	412.6	351.2	310.1	300.0	310.1	351.2
135°	526.4	527.6	497.2	468.0	515.0	444.8	381.7	341.1	331.0	341.1	381.7
137.5°	543.7	540.1	512.7	494.8	546.0	475.8	411.4	373.9	357.8	373.9	411.4
140°	556.1	555.6	532.9	518.7	579.5	506.1	441.8	403.6	388.8	403.6	441.8
142.5°	569.3	572.9	553.2	544.8	612.8	538.3	474.6	432.9	418.6	432.9	474.6
145°	578.2	585.9	573.4	577.6	644.3	574.1	503.2	460.8	445.3	460.8	503.2
147.5°	593.1	603.2	588.4	600.9	671.8	605.6	531.7	490.1	476.3	490.1	531.7
150°	613.4	618.2	609.2	633.0	699.7	640.8	561.0	518.1	504.4	518.1	561.0
152.5°	629.5	635.4	625.3	668.2	721.8	672.9	593.1	545.5	529.3	545.5	593.1
155°	646.2	648.5	641.4	702.2	745.0	704.6	618.7	575.8	560.3	575.8	618.7
157.5°	661.6	666.4	658.1	727.8	765.3	732.0	648.0	606.2	592.5	606.2	648.0
160°	678.3	678.3	683.1	757.6	782.0	755.8	679.0	639.6	620.6	639.6	679.0
162.5°	680.1	691.4	717.0	778.4	798.0	776.6	712.3	663.5	646.7	663.5	712.3
165°	706.3	716.5	755.2	796.8	810.6	795.1	753.4	702.7	683.1	702.7	753.4
167.5°	733.7	755.2	786.2	817.7	822.4	812.3	785.0	749.8	732.0	749.8	785.0
170°	778.4	796.8	812.3	825.5	832.0	826.1	804.6	787.4	776.0	787.4	804.6
172.5°	813.5	825.5	831.5	839.8	835.6	833.2	822.4	814.2	808.2	814.2	822.4
175°	835.6	838.0	843.3	840.4	844.0	837.4	838.0	842.1	817.7	842.1	838.0
177.5°	843.3	847.5	844.5	839.2	839.8	838.6	840.9	843.3	839.8	843.3	840.9
180°	843.3	843.3	843.3	843.3	843.3	843.3	843.3	843.3	843.3	843.3	843.3



TEST NUMBER: P392504

CATALOG NUMBER: MWL-2-22-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	528.1	528.1	528.1	528.1	528.1	528.1
2.5°	526.8	526.5	527.4	528.6	527.4	526.3
5°	524.1	523.2	524.1	525.9	524.7	522.6
7.5°	519.0	518.6	519.5	520.8	520.8	519.6
10°	512.9	511.7	513.5	514.4	514.4	513.8
12.5°	504.7	503.2	504.7	505.6	507.1	507.7
15°	495.9	494.1	496.5	496.5	497.1	498.3
17.5°	485.0	484.1	485.0	485.5	486.2	487.3
20°	471.6	471.6	472.2	473.7	474.0	473.7
22.5°	459.7	458.8	460.4	460.0	459.4	459.4
25°	445.2	445.2	445.8	445.2	443.9	443.9
27.5°	430.3	429.7	430.9	429.7	426.6	425.7
30°	413.9	414.2	415.1	412.9	408.4	406.5
32.5°	396.6	397.5	397.8	392.9	386.5	383.8
35°	376.8	377.7	378.7	371.4	363.2	360.4
37.5°	356.8	360.2	358.6	347.7	338.6	337.7
40°	335.8	340.1	337.0	321.3	314.9	316.7
42.5°	312.1	320.1	313.3	296.0	292.1	294.8
45°	286.6	297.3	287.8	270.5	271.4	274.1
47.5°	260.2	275.4	260.8	247.7	250.5	255.0
50°	233.2	244.7	234.4	226.8	232.2	234.1
52.5°	208.6	213.7	209.8	206.2	214.0	216.8
55°	184.3	179.5	185.5	186.1	196.2	198.0
57.5°	158.8	150.3	160.0	167.0	177.9	179.8
60°	135.1	128.5	135.8	146.3	160.0	161.8
62.5°	111.4	107.8	112.1	125.4	140.9	144.5
65°	93.2	91.4	93.8	105.7	120.3	124.8
67.5°	77.7	78.6	77.7	89.3	101.1	107.5
70°	64.1	65.9	64.1	72.3	83.2	91.4
72.5°	51.7	54.4	52.2	58.6	66.8	75.9
75°	41.6	45.3	41.6	45.3	54.0	61.3
77.5°	32.5	36.2	32.5	35.3	46.4	56.0
80°	25.2	27.1	25.2	28.8	47.5	57.1
82.5°	17.9	18.9	17.9	31.4	55.1	63.1
85°	13.9	10.7	15.1	41.7	69.3	75.3
87.5°	13.0	2.7	21.3	56.3	87.7	92.2
90°	8.5	0.6	31.2	75.1	106.7	110.9
92.5°	4.8	9.6	45.9	94.3	129.0	134.3
95°	2.4	23.9	62.0	116.3	152.2	154.8
97.5°	7.1	42.3	83.4	138.9	174.4	178.3
100°	19.7	65.0	109.1	163.0	196.4	197.9
102.5°	36.9	89.4	133.5	186.5	221.0	229.1
105°	60.1	117.3	159.1	215.7	247.5	255.9
107.5°	87.0	147.1	185.3	242.8	275.6	281.5
110°	116.5	178.1	212.4	268.4	304.1	311.3



TEST NUMBER: P392504

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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	147.5	211.2	239.8	292.3	334.6	339.9
115°	182.6	241.0	265.4	319.6	359.0	362.0
117.5°	214.2	276.8	291.6	339.9	384.6	385.2
120°	247.5	310.7	317.9	367.9	409.6	414.4
122.5°	281.5	342.8	342.8	391.8	431.7	434.7
125°	313.1	377.5	367.9	409.6	451.9	453.1
127.5°	345.3	412.6	395.3	432.9	471.6	469.8
130°	380.4	446.0	420.4	454.9	490.1	484.1
132.5°	412.6	481.7	446.0	477.5	508.5	512.1
135°	444.8	515.0	468.0	497.2	527.6	526.4
137.5°	475.8	546.0	494.8	512.7	540.1	543.7
140°	506.1	579.5	518.7	532.9	555.6	556.1
142.5°	538.3	612.8	544.8	553.2	572.9	569.3
145°	574.1	644.3	577.6	573.4	585.9	578.2
147.5°	605.6	671.8	600.9	588.4	603.2	593.1
150°	640.8	699.7	633.0	609.2	618.2	613.4
152.5°	672.9	721.8	668.2	625.3	635.4	629.5
155°	704.6	745.0	702.2	641.4	648.5	646.2
157.5°	732.0	765.3	727.8	658.1	666.4	661.6
160°	755.8	782.0	757.6	683.1	678.3	678.3
162.5°	776.6	798.0	778.4	717.0	691.4	680.1
165°	795.1	810.6	796.8	755.2	716.5	706.3
167.5°	812.3	822.4	817.7	786.2	755.2	733.7
170°	826.1	832.0	825.5	812.3	796.8	778.4
172.5°	833.2	835.6	839.8	831.5	825.5	813.5
175°	837.4	844.0	840.4	843.3	838.0	835.6
177.5°	838.6	839.8	839.2	844.5	847.5	843.3
180°	843.3	843.3	843.3	843.3	843.3	843.3

(END OF REPORT)