

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: P392489

Luminaire Tested: **MWL-2-18-13-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392489
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-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

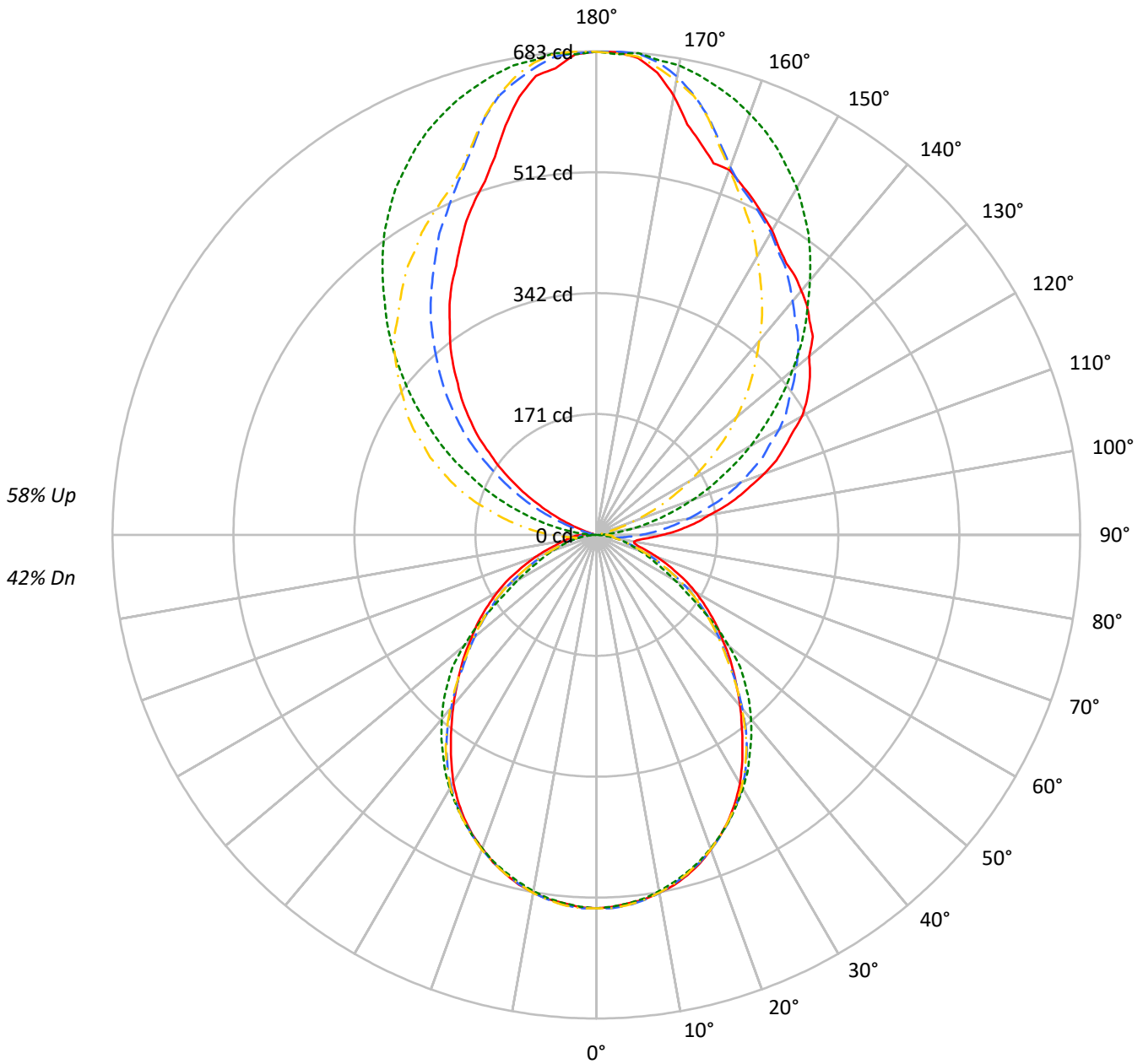
Lumens per Lamp: N/A
Luminaire Lumens: 2829.0 lumens
Efficiency: N/A
Efficacy: 98.3 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

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



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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°	6811	6811	6811	6811
5°	6650	6226	6650	6226
10°	6491	5696	6491	5696
15°	6298	5205	6279	5205
20°	6040	4748	6020	4748
25°	5755	4322	5735	4322
30°	5400	3912	5375	3912
35°	4948	3499	4929	3499
40°	4534	3113	4507	3113
45°	4135	2710	4113	2710
50°	3757	2240	3735	2240
55°	3424	1661	3409	1661
60°	3064	1211	3054	1211
65°	2630	886	2630	886
70°	2190	662	2202	662
75°	1715	476	1755	476
80°	1841	300	1528	300
85°	2893	125	1517	125



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.6	1.8
10°-20°	139.5	4.9
20°-30°	204.1	7.2
30°-40°	230.4	8.1
40°-50°	214.2	7.6
50°-60°	168.3	5.9
60°-70°	106.7	3.8
70°-80°	53.3	1.9
80°-90°	34.7	1.2
90°-100°	54.1	1.9
100°-110°	105.0	3.7
110°-120°	181.5	6.4
120°-130°	246.4	8.7
130°-140°	281.0	9.9
140°-150°	280.3	9.9
150°-160°	244.1	8.6
160°-170°	171.7	6.1
170°-180°	63.9	2.3
0°-30°	393.3	13.9
0°-40°	623.6	22.0
0°-60°	1006.1	35.6
0°-90°	1200.9	42.5
90°-120°	340.7	12.0
90°-150°	1148.4	40.6
90°-180°	1628.0	57.5
0°-180°	2829.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	527	527	527	527	527	
5°	522	522	522	522	522	50
15°	497	494	496	494	497	140
25°	443	445	442	445	443	203
35°	360	377	358	377	360	225
45°	274	297	272	297	274	211
55°	197	179	196	179	197	177
65°	124	91	124	91	124	124
75°	61	45	62	45	61	70
85°	66	10	35	10	66	52
90°	93	0	21	0	93	52
95°	128	19	13	19	128	112
105°	207	95	4	95	207	219
115°	293	195	67	195	293	291
125°	367	306	167	306	367	327
135°	426	417	268	417	426	329
145°	468	521	360	521	468	295
155°	523	603	454	603	523	241
165°	572	656	553	656	572	162
175°	676	683	662	683	676	63
180°	682	682	682	682	682	



TEST NUMBER: P392489

CATALOG NUMBER: MWL-2-18-13-UNV-L940-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	527.3	527.3	527.3	527.3	527.3	527.3	527.3	527.3	527.3	527.3	527.3
2.5°	525.8	526.8	527.7	526.4	525.5	525.9	527.7	526.8	526.3	526.8	527.7
5°	522.2	524.1	525.0	523.2	522.2	523.2	524.5	524.1	522.2	524.1	524.5
7.5°	519.0	520.0	520.0	518.6	517.7	518.1	519.5	519.5	519.0	519.5	519.5
10°	513.1	513.6	513.6	512.7	510.9	512.2	513.1	512.6	513.1	512.6	513.1
12.5°	506.8	506.3	504.9	504.0	502.6	504.0	504.9	505.3	505.8	505.3	504.9
15°	497.3	496.3	495.8	495.8	493.5	495.3	495.3	495.3	495.8	495.3	495.3
17.5°	486.3	485.3	484.9	484.3	483.4	484.3	484.3	484.9	484.9	484.9	484.3
20°	472.7	473.0	473.0	471.6	471.1	471.1	472.5	472.1	471.2	472.1	472.5
22.5°	458.5	458.5	459.4	459.7	458.4	459.3	458.8	457.6	457.6	457.6	458.8
25°	443.0	443.0	444.3	445.2	444.7	444.7	443.3	441.5	441.5	441.5	443.3
27.5°	424.8	425.7	428.9	430.2	429.2	429.7	427.9	424.2	423.3	424.2	427.9
30°	405.6	407.4	412.0	414.3	413.7	413.3	410.5	406.0	403.7	406.0	410.5
32.5°	382.8	385.6	392.0	397.0	396.9	396.0	390.5	383.7	380.9	383.7	390.5
35°	359.6	362.3	370.5	377.8	377.3	376.4	369.1	360.9	358.2	360.9	369.1
37.5°	336.8	337.7	346.9	357.8	359.5	356.3	345.4	336.3	335.4	336.3	345.4
40°	315.9	314.1	320.4	336.4	339.5	335.4	318.5	312.1	314.0	312.1	318.5
42.5°	294.0	291.3	295.4	312.7	319.4	311.7	293.9	289.4	292.1	289.4	293.9
45°	273.5	270.8	269.9	287.2	296.7	286.2	268.0	269.3	272.1	269.3	268.0
47.5°	254.4	249.8	247.1	260.2	274.8	259.8	245.2	248.4	252.9	248.4	245.2
50°	233.4	231.6	226.1	233.8	244.3	232.9	224.2	229.7	232.0	229.7	224.2
52.5°	216.1	213.4	205.5	209.2	213.3	208.3	204.2	211.5	214.7	211.5	204.2
55°	197.3	195.5	185.5	185.0	179.1	184.1	184.1	194.2	196.4	194.2	184.1
57.5°	179.1	177.3	166.4	159.5	150.0	158.6	165.0	175.9	178.2	175.9	165.0
60°	161.4	159.5	145.9	135.4	128.1	134.9	145.0	158.6	160.9	158.6	145.0
62.5°	144.0	140.4	124.9	111.7	107.6	111.2	124.0	139.5	143.6	139.5	124.0
65°	124.5	119.9	105.3	93.5	91.2	93.0	104.9	119.4	124.5	119.4	104.9
67.5°	107.1	100.8	88.9	77.5	78.4	77.5	88.5	100.3	107.1	100.3	88.5
70°	91.2	83.0	72.1	63.9	65.7	63.9	72.1	83.5	91.7	83.5	72.1
72.5°	75.7	66.6	58.4	52.0	54.2	51.5	58.4	67.1	76.6	67.1	58.4
75°	61.1	53.8	45.1	41.5	45.1	41.5	45.6	54.3	62.5	54.3	45.6
77.5°	54.9	45.7	35.1	32.3	36.0	32.3	35.6	44.3	53.0	44.3	35.6
80°	54.0	45.2	28.3	25.1	26.9	25.1	27.4	37.4	44.8	37.4	27.4
82.5°	57.4	50.3	29.6	17.8	18.7	17.8	23.8	33.0	39.1	33.0	23.8
85°	66.0	61.1	37.4	14.7	10.5	13.8	23.5	31.7	34.6	31.7	23.5
87.5°	78.7	75.3	48.7	19.2	2.7	12.4	21.2	29.1	29.1	29.1	21.2
90°	92.9	90.0	63.3	26.6	0.5	8.3	15.6	22.0	20.7	22.0	15.6
92.5°	111.4	107.5	78.4	37.9	7.7	4.6	12.4	18.3	16.9	18.3	12.4
95°	127.5	125.5	95.5	50.1	19.3	1.9	8.7	13.8	13.3	13.8	8.7
97.5°	146.0	142.7	113.1	67.5	34.3	5.7	6.6	10.1	11.0	10.1	6.6
100°	161.2	159.7	132.0	88.2	52.6	15.9	4.3	8.4	9.3	8.4	4.3
102.5°	185.9	179.2	150.9	108.0	72.3	29.9	7.2	5.6	6.6	5.6	7.2
105°	207.2	200.4	174.5	128.6	94.9	48.7	18.8	6.7	4.3	6.7	18.8
107.5°	227.9	223.0	196.6	149.9	119.1	70.3	36.1	18.8	12.0	18.8	36.1
110°	252.0	246.2	217.3	172.0	144.1	94.4	54.8	34.2	26.4	34.2	54.8



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CATALOG NUMBER: MWL-2-18-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	275.2	270.8	236.6	194.2	171.0	119.4	78.0	53.5	46.2	53.5	78.0
115°	292.9	290.5	258.8	214.9	195.2	147.9	103.6	76.1	67.4	76.1	103.6
117.5°	311.8	311.2	275.2	236.1	224.0	173.5	127.2	98.8	89.6	98.8	127.2
120°	335.4	331.5	297.7	257.3	251.6	200.4	153.2	124.7	115.6	124.7	153.2
122.5°	351.8	349.3	317.1	277.5	277.5	227.9	178.3	149.8	140.2	149.8	178.3
125°	366.7	365.7	331.5	297.7	305.5	253.5	206.2	177.3	166.7	177.3	206.2
127.5°	380.2	381.7	350.3	320.0	333.9	279.4	233.7	201.9	190.8	201.9	233.7
130°	391.8	396.6	368.2	340.2	360.9	307.9	258.3	226.5	219.2	226.5	258.3
132.5°	414.4	411.5	386.5	360.9	389.9	333.9	284.3	251.0	242.8	251.0	284.3
135°	425.9	426.9	402.3	378.7	416.8	360.0	308.9	276.1	267.9	276.1	308.9
137.5°	440.0	437.1	414.9	400.4	441.9	385.0	332.9	302.6	289.5	302.6	332.9
140°	450.1	449.6	431.3	419.7	468.9	409.6	357.5	326.7	314.6	326.7	357.5
142.5°	460.7	463.6	447.6	440.9	495.8	435.6	384.0	350.3	338.7	350.3	384.0
145°	467.9	474.1	464.0	467.4	521.4	464.6	407.2	373.0	360.4	373.0	407.2
147.5°	480.0	488.2	476.0	486.3	543.6	490.1	430.3	396.6	385.5	396.6	430.3
150°	496.4	500.2	493.0	512.2	566.2	518.5	453.9	419.2	408.2	419.2	453.9
152.5°	509.3	514.1	505.9	540.6	584.0	544.6	480.0	441.4	428.4	441.4	480.0
155°	522.9	524.8	519.0	568.2	602.9	570.1	500.6	465.9	453.5	465.9	500.6
157.5°	535.4	539.2	532.4	588.8	619.2	592.2	524.2	490.5	479.5	490.5	524.2
160°	548.8	548.8	552.8	613.0	632.8	611.5	549.4	517.5	502.1	517.5	549.4
162.5°	550.3	559.5	580.2	629.8	645.7	628.4	576.4	536.8	523.3	536.8	576.4
165°	571.5	579.7	611.1	644.8	655.8	643.3	609.6	568.6	552.8	568.6	609.6
167.5°	593.7	611.1	636.1	661.6	665.5	657.3	635.1	606.7	592.2	606.7	635.1
170°	629.8	644.8	657.3	667.9	673.2	668.4	651.1	637.0	627.9	637.0	651.1
172.5°	658.3	667.9	672.8	679.5	676.1	674.1	665.5	658.7	653.9	658.7	665.5
175°	676.1	678.0	682.3	680.0	682.9	677.6	678.0	681.4	661.6	681.4	678.0
177.5°	682.3	685.7	683.3	679.0	679.5	678.5	680.4	682.3	679.5	682.3	680.4
180°	682.3	682.3	682.3	682.3	682.3	682.3	682.3	682.3	682.3	682.3	682.3



TEST NUMBER: P392489

CATALOG NUMBER: MWL-2-18-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	527.3	527.3	527.3	527.3	527.3	527.3
2.5°	525.9	525.5	526.4	527.7	526.8	525.8
5°	523.2	522.2	523.2	525.0	524.1	522.2
7.5°	518.1	517.7	518.6	520.0	520.0	519.0
10°	512.2	510.9	512.7	513.6	513.6	513.1
12.5°	504.0	502.6	504.0	504.9	506.3	506.8
15°	495.3	493.5	495.8	495.8	496.3	497.3
17.5°	484.3	483.4	484.3	484.9	485.3	486.3
20°	471.1	471.1	471.6	473.0	473.0	472.7
22.5°	459.3	458.4	459.7	459.4	458.5	458.5
25°	444.7	444.7	445.2	444.3	443.0	443.0
27.5°	429.7	429.2	430.2	428.9	425.7	424.8
30°	413.3	413.7	414.3	412.0	407.4	405.6
32.5°	396.0	396.9	397.0	392.0	385.6	382.8
35°	376.4	377.3	377.8	370.5	362.3	359.6
37.5°	356.3	359.5	357.8	346.9	337.7	336.8
40°	335.4	339.5	336.4	320.4	314.1	315.9
42.5°	311.7	319.4	312.7	295.4	291.3	294.0
45°	286.2	296.7	287.2	269.9	270.8	273.5
47.5°	259.8	274.8	260.2	247.1	249.8	254.4
50°	232.9	244.3	233.8	226.1	231.6	233.4
52.5°	208.3	213.3	209.2	205.5	213.4	216.1
55°	184.1	179.1	185.0	185.5	195.5	197.3
57.5°	158.6	150.0	159.5	166.4	177.3	179.1
60°	134.9	128.1	135.4	145.9	159.5	161.4
62.5°	111.2	107.6	111.7	124.9	140.4	144.0
65°	93.0	91.2	93.5	105.3	119.9	124.5
67.5°	77.5	78.4	77.5	88.9	100.8	107.1
70°	63.9	65.7	63.9	72.1	83.0	91.2
72.5°	51.5	54.2	52.0	58.4	66.6	75.7
75°	41.5	45.1	41.5	45.1	53.8	61.1
77.5°	32.3	36.0	32.3	35.1	45.7	54.9
80°	25.1	26.9	25.1	28.3	45.2	54.0
82.5°	17.8	18.7	17.8	29.6	50.3	57.4
85°	13.8	10.5	14.7	37.4	61.1	66.0
87.5°	12.4	2.7	19.2	48.7	75.3	78.7
90°	8.3	0.5	26.6	63.3	90.0	92.9
92.5°	4.6	7.7	37.9	78.4	107.5	111.4
95°	1.9	19.3	50.1	95.5	125.5	127.5
97.5°	5.7	34.3	67.5	113.1	142.7	146.0
100°	15.9	52.6	88.2	132.0	159.7	161.2
102.5°	29.9	72.3	108.0	150.9	179.2	185.9
105°	48.7	94.9	128.6	174.5	200.4	207.2
107.5°	70.3	119.1	149.9	196.6	223.0	227.9
110°	94.4	144.1	172.0	217.3	246.2	252.0



TEST NUMBER: P392489

CATALOG NUMBER: MWL-2-18-13-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	119.4	171.0	194.2	236.6	270.8	275.2
115°	147.9	195.2	214.9	258.8	290.5	292.9
117.5°	173.5	224.0	236.1	275.2	311.2	311.8
120°	200.4	251.6	257.3	297.7	331.5	335.4
122.5°	227.9	277.5	277.5	317.1	349.3	351.8
125°	253.5	305.5	297.7	331.5	365.7	366.7
127.5°	279.4	333.9	320.0	350.3	381.7	380.2
130°	307.9	360.9	340.2	368.2	396.6	391.8
132.5°	333.9	389.9	360.9	386.5	411.5	414.4
135°	360.0	416.8	378.7	402.3	426.9	425.9
137.5°	385.0	441.9	400.4	414.9	437.1	440.0
140°	409.6	468.9	419.7	431.3	449.6	450.1
142.5°	435.6	495.8	440.9	447.6	463.6	460.7
145°	464.6	521.4	467.4	464.0	474.1	467.9
147.5°	490.1	543.6	486.3	476.0	488.2	480.0
150°	518.5	566.2	512.2	493.0	500.2	496.4
152.5°	544.6	584.0	540.6	505.9	514.1	509.3
155°	570.1	602.9	568.2	519.0	524.8	522.9
157.5°	592.2	619.2	588.8	532.4	539.2	535.4
160°	611.5	632.8	613.0	552.8	548.8	548.8
162.5°	628.4	645.7	629.8	580.2	559.5	550.3
165°	643.3	655.8	644.8	611.1	579.7	571.5
167.5°	657.3	665.5	661.6	636.1	611.1	593.7
170°	668.4	673.2	667.9	657.3	644.8	629.8
172.5°	674.1	676.1	679.5	672.8	667.9	658.3
175°	677.6	682.9	680.0	682.3	678.0	676.1
177.5°	678.5	679.5	679.0	683.3	685.7	682.3
180°	682.3	682.3	682.3	682.3	682.3	682.3

(END OF REPORT)