

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: P392503

Luminaire Tested: **MWL-2-22-13-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392503
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-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

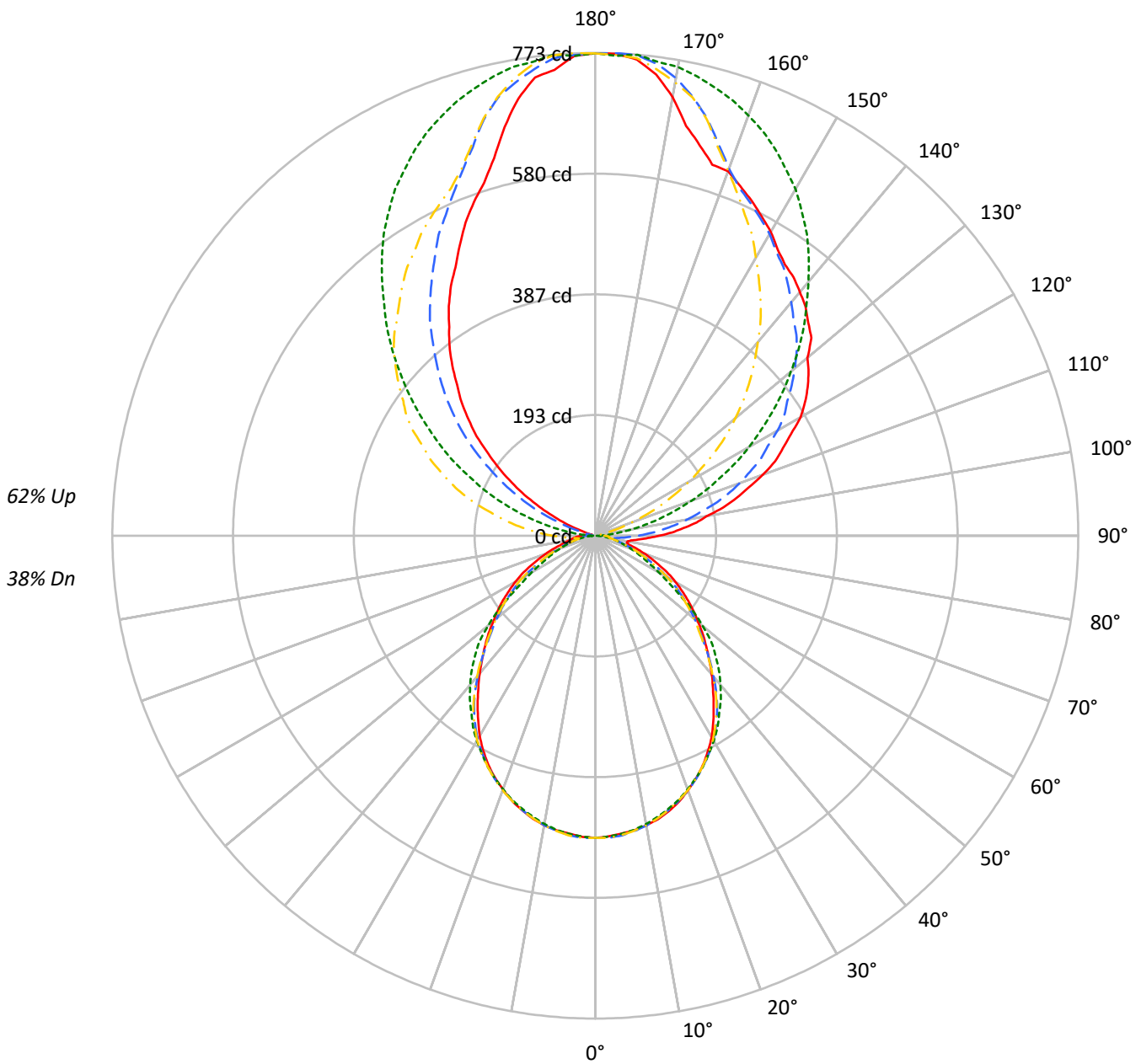
Lumens per Lamp: N/A
Luminaire Lumens: 2945.1 lumens
Efficiency: N/A
Efficacy: 87.0 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: Semi-Indirect

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



TEST NUMBER: P392503
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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	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°	6247	6247	6247	6247
5°	6094	5712	6094	5712
10°	5952	5225	5952	5225
15°	5779	4771	5758	4771
20°	5543	4352	5521	4352
25°	5279	3962	5260	3962
30°	4957	3586	4927	3586
35°	4542	3208	4519	3208
40°	4162	2855	4132	2855
45°	3794	2486	3772	2486
50°	3450	2055	3424	2055
55°	3147	1525	3127	1525
60°	2813	1112	2802	1112
65°	2415	814	2415	814
70°	2010	608	2025	608
75°	1578	438	1623	438
80°	1783	277	1429	277
85°	3020	117	1468	117



TEST NUMBER: P392503

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.5	1.5
10°-20°	128.0	4.3
20°-30°	187.2	6.4
30°-40°	211.3	7.2
40°-50°	196.5	6.7
50°-60°	154.4	5.2
60°-70°	98.0	3.3
70°-80°	49.2	1.7
80°-90°	34.7	1.2
90°-100°	59.7	2.0
100°-110°	118.7	4.0
110°-120°	205.3	7.0
120°-130°	278.8	9.5
130°-140°	317.9	10.8
140°-150°	317.1	10.8
150°-160°	276.2	9.4
160°-170°	194.3	6.6
170°-180°	72.4	2.5
0°-30°	360.6	12.2
0°-40°	572.0	19.4
0°-60°	922.9	31.3
0°-90°	1104.7	37.5
90°-120°	383.7	13.0
90°-150°	1297.5	44.1
90°-180°	1840.0	62.5
0°-180°	2945.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	484	484	484	484	484	
5°	479	479	479	479	479	45
15°	456	452	455	452	456	128
25°	406	408	405	408	406	187
35°	330	346	328	346	330	207
45°	251	272	250	272	251	194
55°	181	164	180	164	181	162
65°	114	84	114	84	114	114
75°	56	42	58	42	56	65
85°	69	10	34	10	69	53
90°	102	1	20	1	102	56
95°	142	22	12	22	142	124
105°	234	107	5	107	234	247
115°	331	221	76	221	331	329
125°	415	346	188	346	415	371
135°	482	472	303	472	482	372
145°	530	590	408	590	530	334
155°	592	682	513	682	592	273
165°	647	742	625	742	647	183
175°	765	773	749	773	765	71
180°	772	772	772	772	772	



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	483.6	483.6	483.6	483.6	483.6	483.6	483.6	483.6	483.6	483.6	483.6
2.5°	481.9	483.0	484.1	483.0	482.1	482.4	484.1	483.0	482.4	483.0	484.1
5°	478.6	480.5	481.6	479.9	479.1	479.9	481.1	480.5	478.6	480.5	481.1
7.5°	475.8	476.9	476.9	475.7	474.9	475.2	476.3	476.3	475.8	476.3	476.3
10°	470.5	471.1	471.1	470.2	468.6	469.6	470.5	469.9	470.5	469.9	470.5
12.5°	464.8	464.3	462.9	462.1	460.8	462.1	462.9	463.3	463.8	463.3	462.9
15°	456.3	455.2	454.6	454.6	452.4	454.1	454.1	454.1	454.6	454.1	454.1
17.5°	446.3	445.2	444.6	444.1	443.3	444.1	444.1	444.6	444.6	444.6	444.1
20°	433.8	434.0	433.8	432.4	431.8	431.8	433.3	432.9	432.1	432.9	433.3
22.5°	420.7	420.7	421.3	421.5	420.1	421.0	420.8	419.5	419.5	419.5	420.8
25°	406.4	406.4	407.6	408.2	407.6	407.6	406.5	404.9	404.9	404.9	406.5
27.5°	389.8	390.6	393.5	394.5	393.5	394.0	392.4	389.0	388.2	389.0	392.4
30°	372.3	373.9	378.1	380.1	379.2	379.0	376.5	372.3	370.1	372.3	376.5
32.5°	351.4	353.9	359.7	364.2	364.0	363.2	358.2	351.7	349.2	351.7	358.2
35°	330.1	332.6	340.1	346.7	345.9	345.1	338.4	330.9	328.4	330.9	338.4
37.5°	309.2	310.0	318.3	328.4	329.8	326.7	316.7	308.3	307.5	308.3	316.7
40°	290.0	288.3	294.2	308.6	311.4	307.5	292.0	286.1	287.9	286.1	292.0
42.5°	270.0	267.5	271.0	286.9	293.1	285.8	269.5	265.3	267.8	265.3	269.5
45°	251.0	248.5	247.7	263.5	272.2	262.5	245.5	247.0	249.5	247.0	245.5
47.5°	233.5	229.4	226.9	238.9	252.2	238.2	224.7	227.7	231.9	227.7	224.7
50°	214.3	212.6	207.6	214.7	224.1	213.6	205.5	210.5	212.7	210.5	205.5
52.5°	198.5	196.0	188.8	192.2	195.7	191.0	187.2	193.8	196.9	193.8	187.2
55°	181.3	179.7	170.4	169.9	164.4	168.8	168.8	177.9	180.2	177.9	168.8
57.5°	164.6	162.9	152.9	146.5	137.6	145.4	151.3	161.3	163.5	161.3	151.3
60°	148.2	146.5	134.0	124.3	117.6	123.7	132.9	145.4	147.6	145.4	132.9
62.5°	132.3	129.0	114.8	102.6	98.7	102.0	113.7	127.9	131.9	127.9	113.7
65°	114.3	110.1	96.8	85.9	83.7	85.3	96.2	109.5	114.3	109.5	96.2
67.5°	98.5	92.6	81.8	71.2	72.0	71.2	81.2	92.0	98.5	92.0	81.2
70°	83.7	76.2	66.2	58.7	60.3	58.7	66.2	76.8	84.3	76.8	66.2
72.5°	69.5	61.2	53.7	47.8	49.8	47.3	53.7	61.7	70.6	61.7	53.7
75°	56.2	49.4	41.5	38.1	41.5	38.1	41.9	50.0	57.8	50.0	41.9
77.5°	51.3	42.5	32.3	29.8	33.1	29.8	32.8	40.9	49.1	40.9	32.8
80°	52.3	43.5	26.4	23.1	24.8	23.1	25.3	34.7	41.9	34.7	25.3
82.5°	57.8	50.5	28.8	16.4	17.3	16.4	22.2	30.8	37.1	30.8	22.2
85°	68.9	63.5	38.2	13.8	9.8	12.8	22.4	30.2	33.5	30.2	22.4
87.5°	84.4	80.3	51.6	19.5	2.5	11.9	20.5	28.0	28.2	28.0	20.5
90°	101.6	97.7	68.8	28.6	0.6	7.8	14.7	20.8	19.7	20.8	14.7
92.5°	123.0	118.1	86.4	42.0	8.8	4.4	11.6	17.2	16.1	17.2	11.6
95°	141.8	139.4	106.6	56.7	21.8	2.2	8.4	12.8	12.5	12.8	8.4
97.5°	163.3	159.7	127.1	76.4	38.7	6.5	6.6	9.7	10.5	9.7	6.6
100°	181.2	179.9	149.3	99.8	59.5	18.0	4.7	8.5	9.3	8.5	4.7
102.5°	209.9	202.4	170.8	122.2	81.8	33.8	8.2	6.0	6.8	6.0	8.2
105°	234.4	226.7	197.5	145.7	107.4	55.1	21.3	7.3	4.7	7.3	21.3
107.5°	257.8	252.4	222.4	169.7	134.7	79.6	40.6	21.1	13.4	21.1	40.6
110°	285.1	278.5	245.8	194.5	163.1	106.7	61.9	38.5	29.8	38.5	61.9



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	311.2	306.3	267.7	219.6	193.4	135.0	88.1	60.3	52.1	60.3	88.1
115°	331.4	328.7	292.7	243.0	220.6	167.2	117.0	85.9	76.1	85.9	117.0
117.5°	352.8	352.1	311.2	267.1	253.4	196.1	143.8	111.6	101.2	111.6	143.8
120°	379.4	375.1	336.9	291.1	284.5	226.7	173.2	141.1	130.6	141.1	173.2
122.5°	398.1	395.3	358.7	313.9	313.9	257.8	201.6	169.5	158.5	169.5	201.6
125°	414.9	413.8	375.1	336.9	345.7	286.7	233.2	200.5	188.5	200.5	233.2
127.5°	430.2	431.8	396.3	362.0	377.9	316.2	264.3	228.3	215.7	228.3	264.3
130°	443.3	448.8	416.5	384.9	408.4	348.4	292.2	256.1	247.9	256.1	292.2
132.5°	469.0	465.6	437.2	408.4	441.1	377.9	321.6	284.0	274.7	284.0	321.6
135°	482.0	483.1	455.3	428.6	471.7	407.3	349.5	312.4	303.1	312.4	349.5
137.5°	497.8	494.5	469.4	453.1	500.0	435.7	376.7	342.4	327.6	342.4	376.7
140°	509.3	508.8	488.0	474.9	530.6	463.5	404.5	369.6	356.0	369.6	404.5
142.5°	521.3	524.6	506.6	498.9	561.1	492.9	434.6	396.3	383.3	396.3	434.6
145°	529.5	536.6	525.1	529.0	590.1	525.7	460.8	422.0	407.8	422.0	460.8
147.5°	543.1	552.4	538.8	550.2	615.2	554.6	486.9	448.8	436.2	448.8	486.9
150°	561.7	566.1	557.8	579.7	640.7	586.8	513.7	474.3	461.8	474.3	513.7
152.5°	576.4	581.9	572.5	611.9	660.9	616.2	543.1	499.5	484.7	499.5	543.1
155°	591.7	593.8	587.4	642.9	682.2	645.2	566.6	527.2	513.1	527.2	566.6
157.5°	605.8	610.2	602.6	666.4	700.8	670.3	593.3	555.1	542.5	555.1	593.3
160°	621.1	621.1	625.4	693.7	716.0	692.0	621.7	585.7	568.2	585.7	621.7
162.5°	622.8	633.1	656.6	712.8	730.8	711.1	652.3	607.6	592.2	607.6	652.3
165°	646.7	656.1	691.5	729.7	742.3	728.1	689.9	643.5	625.4	643.5	689.9
167.5°	671.9	691.5	719.9	748.7	753.1	743.8	718.8	686.6	670.3	686.6	718.8
170°	712.8	729.7	743.8	755.9	761.9	756.4	736.7	721.0	710.6	721.0	736.7
172.5°	744.9	755.9	761.3	768.9	765.1	763.0	753.1	745.5	740.1	745.5	753.1
175°	765.1	767.4	772.2	769.5	772.8	766.8	767.4	771.2	748.7	771.2	767.4
177.5°	772.2	776.1	773.3	768.5	768.9	767.9	770.1	772.2	768.9	772.2	770.1
180°	772.2	772.2	772.2	772.2	772.2	772.2	772.2	772.2	772.2	772.2	772.2



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	483.6	483.6	483.6	483.6	483.6	483.6
2.5°	482.4	482.1	483.0	484.1	483.0	481.9
5°	479.9	479.1	479.9	481.6	480.5	478.6
7.5°	475.2	474.9	475.7	476.9	476.9	475.8
10°	469.6	468.6	470.2	471.1	471.1	470.5
12.5°	462.1	460.8	462.1	462.9	464.3	464.8
15°	454.1	452.4	454.6	454.6	455.2	456.3
17.5°	444.1	443.3	444.1	444.6	445.2	446.3
20°	431.8	431.8	432.4	433.8	434.0	433.8
22.5°	421.0	420.1	421.5	421.3	420.7	420.7
25°	407.6	407.6	408.2	407.6	406.4	406.4
27.5°	394.0	393.5	394.5	393.5	390.6	389.8
30°	379.0	379.2	380.1	378.1	373.9	372.3
32.5°	363.2	364.0	364.2	359.7	353.9	351.4
35°	345.1	345.9	346.7	340.1	332.6	330.1
37.5°	326.7	329.8	328.4	318.3	310.0	309.2
40°	307.5	311.4	308.6	294.2	288.3	290.0
42.5°	285.8	293.1	286.9	271.0	267.5	270.0
45°	262.5	272.2	263.5	247.7	248.5	251.0
47.5°	238.2	252.2	238.9	226.9	229.4	233.5
50°	213.6	224.1	214.7	207.6	212.6	214.3
52.5°	191.0	195.7	192.2	188.8	196.0	198.5
55°	168.8	164.4	169.9	170.4	179.7	181.3
57.5°	145.4	137.6	146.5	152.9	162.9	164.6
60°	123.7	117.6	124.3	134.0	146.5	148.2
62.5°	102.0	98.7	102.6	114.8	129.0	132.3
65°	85.3	83.7	85.9	96.8	110.1	114.3
67.5°	71.2	72.0	71.2	81.8	92.6	98.5
70°	58.7	60.3	58.7	66.2	76.2	83.7
72.5°	47.3	49.8	47.8	53.7	61.2	69.5
75°	38.1	41.5	38.1	41.5	49.4	56.2
77.5°	29.8	33.1	29.8	32.3	42.5	51.3
80°	23.1	24.8	23.1	26.4	43.5	52.3
82.5°	16.4	17.3	16.4	28.8	50.5	57.8
85°	12.8	9.8	13.8	38.2	63.5	68.9
87.5°	11.9	2.5	19.5	51.6	80.3	84.4
90°	7.8	0.6	28.6	68.8	97.7	101.6
92.5°	4.4	8.8	42.0	86.4	118.1	123.0
95°	2.2	21.8	56.7	106.6	139.4	141.8
97.5°	6.5	38.7	76.4	127.1	159.7	163.3
100°	18.0	59.5	99.8	149.3	179.9	181.2
102.5°	33.8	81.8	122.2	170.8	202.4	209.9
105°	55.1	107.4	145.7	197.5	226.7	234.4
107.5°	79.6	134.7	169.7	222.4	252.4	257.8
110°	106.7	163.1	194.5	245.8	278.5	285.1



TEST NUMBER: P392503

CATALOG NUMBER: MWL-2-22-13-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	135.0	193.4	219.6	267.7	306.3	311.2
115°	167.2	220.6	243.0	292.7	328.7	331.4
117.5°	196.1	253.4	267.1	311.2	352.1	352.8
120°	226.7	284.5	291.1	336.9	375.1	379.4
122.5°	257.8	313.9	313.9	358.7	395.3	398.1
125°	286.7	345.7	336.9	375.1	413.8	414.9
127.5°	316.2	377.9	362.0	396.3	431.8	430.2
130°	348.4	408.4	384.9	416.5	448.8	443.3
132.5°	377.9	441.1	408.4	437.2	465.6	469.0
135°	407.3	471.7	428.6	455.3	483.1	482.0
137.5°	435.7	500.0	453.1	469.4	494.5	497.8
140°	463.5	530.6	474.9	488.0	508.8	509.3
142.5°	492.9	561.1	498.9	506.6	524.6	521.3
145°	525.7	590.1	529.0	525.1	536.6	529.5
147.5°	554.6	615.2	550.2	538.8	552.4	543.1
150°	586.8	640.7	579.7	557.8	566.1	561.7
152.5°	616.2	660.9	611.9	572.5	581.9	576.4
155°	645.2	682.2	642.9	587.4	593.8	591.7
157.5°	670.3	700.8	666.4	602.6	610.2	605.8
160°	692.0	716.0	693.7	625.4	621.1	621.1
162.5°	711.1	730.8	712.8	656.6	633.1	622.8
165°	728.1	742.3	729.7	691.5	656.1	646.7
167.5°	743.8	753.1	748.7	719.9	691.5	671.9
170°	756.4	761.9	755.9	743.8	729.7	712.8
172.5°	763.0	765.1	768.9	761.3	755.9	744.9
175°	766.8	772.8	769.5	772.2	767.4	765.1
177.5°	767.9	768.9	768.5	773.3	776.1	772.2
180°	772.2	772.2	772.2	772.2	772.2	772.2

(END OF REPORT)