

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: P392520

Luminaire Tested: **MWL-2-28-17-UNV-L930-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392520  
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-2-28-17-UNV-L930-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

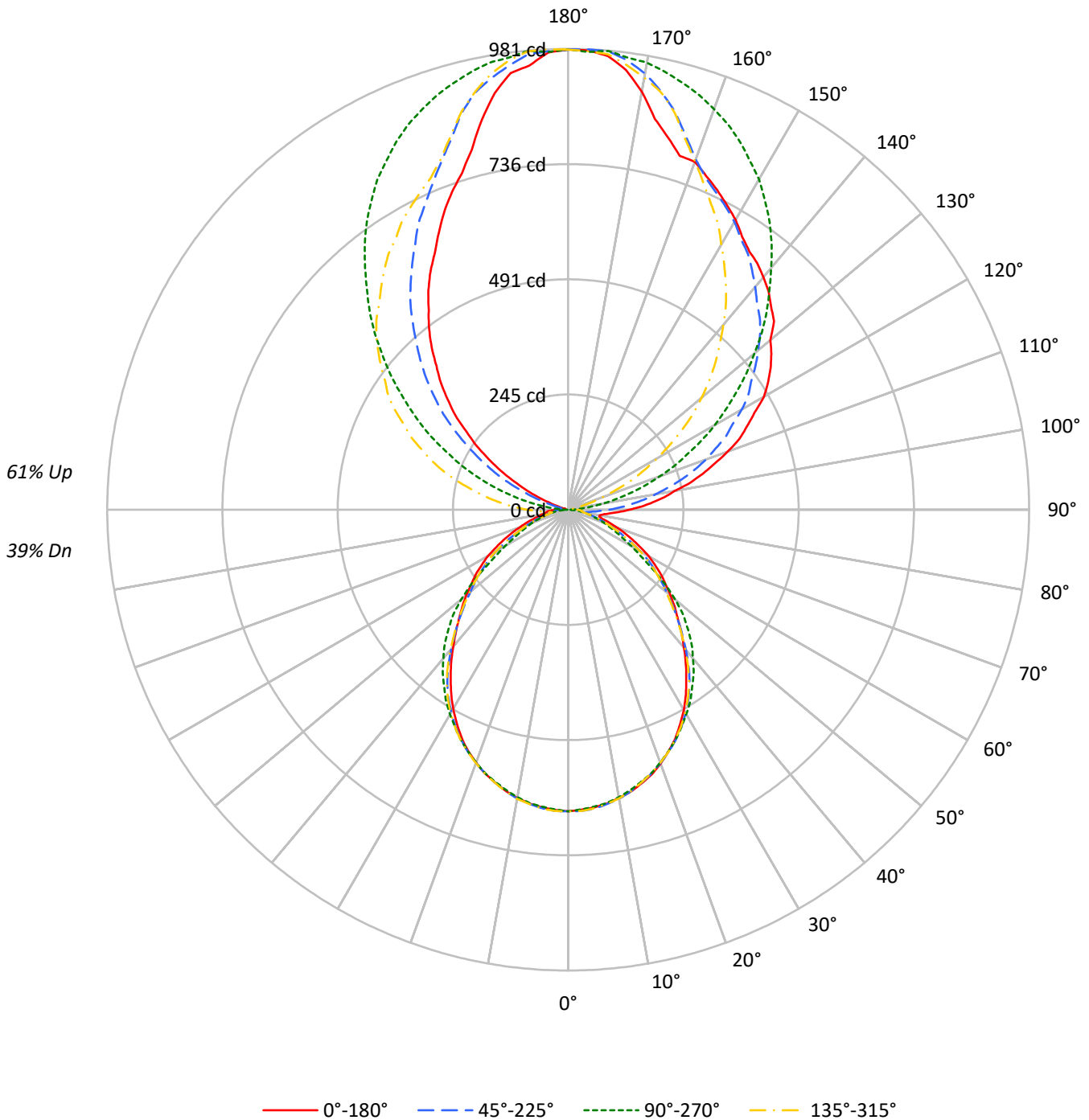
Lumens per Lamp: N/A  
Luminaire Lumens: 3794.9 lumens  
Efficiency: N/A  
Efficacy: 76.1 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 49.894  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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





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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	95	95	95	95	77	77	77	61	61	61	46	46	46	39
1	95	91	87	84	86	83	80	77	68	65	63	53	52	51	40	39	39	33
2	87	80	74	69	79	73	68	63	59	56	53	47	45	43	36	34	33	28
3	80	70	63	58	72	64	58	53	53	48	45	42	39	36	32	30	28	24
4	73	62	55	49	66	57	51	45	47	42	38	38	34	31	29	27	25	21
5	67	56	48	42	61	51	44	39	42	37	33	34	30	27	26	24	22	18
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19	16
7	57	45	37	32	52	41	35	30	34	29	26	28	24	21	22	19	17	14
8	53	41	33	28	48	38	31	26	31	26	23	26	22	19	20	17	15	13
9	49	37	30	25	45	34	28	24	29	24	20	24	20	17	19	16	14	12
10	46	34	27	23	42	32	25	21	27	22	18	22	18	16	17	15	13	11

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	8294	8294	8294	8294
5°	8099	7566	8099	7566
10°	7885	6930	7885	6930
15°	7640	6324	7613	6324
20°	7349	5771	7322	5771
25°	6993	5253	6967	5253
30°	6554	4754	6518	4754
35°	6030	4266	6001	4266
40°	5498	3787	5458	3787
45°	4996	3291	4966	3291
50°	4580	2725	4548	2725
55°	4184	2017	4160	2017
60°	3753	1466	3740	1466
65°	3188	1085	3188	1085
70°	2620	809	2637	809
75°	2117	571	2176	571
80°	2319	374	1872	374
85°	3927	165	1955	165



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	60.4	1.6
10°-20°	169.5	4.5
20°-30°	248.0	6.5
30°-40°	280.0	7.4
40°-50°	260.0	6.9
50°-60°	204.4	5.4
60°-70°	129.3	3.4
70°-80°	65.0	1.7
80°-90°	45.0	1.2
90°-100°	76.1	2.0
100°-110°	150.7	4.0
110°-120°	260.0	6.9
120°-130°	353.1	9.3
130°-140°	402.8	10.6
140°-150°	402.2	10.6
150°-160°	350.3	9.2
160°-170°	246.3	6.5
170°-180°	91.7	2.4
0°-30°	477.9	12.6
0°-40°	758.0	20.0
0°-60°	1222.4	32.2
0°-90°	1461.7	38.5
90°-120°	486.7	12.8
90°-150°	1644.9	43.3
90°-180°	2333.0	61.5
0°-180°	3794.9	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	642	642	642	642	642	
5°	636	635	636	635	636	60
15°	603	600	601	600	603	170
25°	538	540	536	540	538	247
35°	438	460	436	460	438	274
45°	330	360	328	360	330	256
55°	241	218	240	218	241	215
65°	151	112	151	112	151	150
75°	75	54	78	54	75	85
85°	90	14	45	14	90	69
90°	130	1	26	1	130	72
95°	181	28	17	28	181	158
105°	297	137	6	137	297	313
115°	420	280	96	280	420	417
125°	526	438	239	438	526	469
135°	611	598	384	598	611	471
145°	672	748	518	748	672	423
155°	750	864	651	864	750	346
165°	820	941	793	941	820	233
175°	970	980	949	980	970	90
180°	980	980	980	980	980	



TEST NUMBER: P392520

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	642.1	642.1	642.1	642.1	642.1	642.1	642.1	642.1	642.1	642.1	642.1
2.5°	639.2	640.6	642.0	640.2	638.6	639.5	642.0	640.6	639.9	640.6	642.0
5°	636.0	637.3	638.7	636.2	634.6	636.2	638.0	637.3	636.0	637.3	638.0
7.5°	630.9	632.3	632.3	631.2	629.6	630.6	631.5	631.5	630.9	631.5	631.5
10°	623.3	624.9	624.9	623.2	621.5	622.5	624.1	623.5	623.3	623.5	624.1
12.5°	614.9	615.0	614.2	612.6	611.2	612.6	614.2	613.6	613.4	613.6	614.2
15°	603.2	602.6	601.9	601.1	599.6	600.4	601.3	601.3	601.1	601.3	601.3
17.5°	590.9	589.5	588.8	589.0	588.1	589.0	588.1	588.8	588.8	588.8	588.1
20°	575.2	575.3	574.0	574.1	572.7	573.5	573.3	574.0	573.1	574.0	573.3
22.5°	557.3	558.1	558.3	557.7	557.0	557.0	557.7	556.7	555.9	556.7	557.7
25°	538.3	539.1	541.0	540.5	540.5	539.7	539.6	537.1	536.3	537.1	539.6
27.5°	515.4	518.6	521.3	522.1	521.7	521.5	519.8	516.6	513.2	516.6	519.8
30°	492.3	494.8	499.7	504.0	502.8	502.6	497.7	492.7	489.6	492.7	497.7
32.5°	466.0	469.3	476.7	482.6	483.7	481.2	474.6	466.6	463.3	466.6	474.6
35°	438.2	439.8	450.6	458.7	460.0	456.7	448.4	437.8	436.1	437.8	448.4
37.5°	411.1	410.2	421.0	435.8	438.4	433.6	418.9	408.2	409.0	408.2	418.9
40°	383.1	381.4	389.7	408.6	413.0	407.3	386.9	378.7	380.3	378.7	386.9
42.5°	356.8	355.1	358.5	380.7	389.1	379.4	356.4	352.4	354.0	352.4	356.4
45°	330.5	328.1	329.0	348.7	360.3	347.4	326.2	326.0	328.5	326.0	326.2
47.5°	307.6	303.4	301.0	315.1	332.4	314.4	298.2	301.4	305.4	301.4	298.2
50°	284.5	280.4	273.8	283.9	297.2	282.5	271.1	277.7	282.5	277.7	271.1
52.5°	261.5	259.0	249.4	254.3	258.5	252.9	247.2	256.3	259.4	256.3	247.2
55°	241.1	237.8	226.3	224.0	217.5	222.6	224.3	235.7	239.7	235.7	224.3
57.5°	218.9	217.2	203.3	193.5	182.2	192.1	201.2	215.2	217.5	215.2	201.2
60°	197.7	193.5	177.2	163.2	155.0	162.5	175.7	192.1	197.0	192.1	175.7
62.5°	173.0	170.6	152.4	135.2	131.3	134.6	151.1	169.1	172.2	169.1	151.1
65°	150.9	146.0	127.8	113.1	111.6	112.4	127.2	145.3	150.9	145.3	127.2
67.5°	130.3	122.1	106.5	93.5	94.3	93.5	105.8	121.4	130.3	121.4	105.8
70°	109.1	100.1	87.7	77.0	80.3	77.0	87.7	100.7	109.8	100.7	87.7
72.5°	91.8	81.2	71.3	63.0	65.6	62.3	71.3	81.8	93.2	81.8	71.3
75°	75.4	64.7	55.7	50.0	54.1	50.0	56.5	65.3	77.5	65.3	56.5
77.5°	67.8	55.9	42.6	40.2	43.4	40.2	43.3	53.9	65.0	53.9	43.3
80°	68.0	56.6	34.9	30.3	33.5	30.3	33.5	45.5	54.9	45.5	33.5
82.5°	75.5	66.0	38.2	21.2	22.9	21.2	29.9	41.1	49.2	41.1	29.9
85°	89.6	81.0	49.3	18.4	13.8	17.0	29.2	38.9	44.6	38.9	29.2
87.5°	107.9	102.6	65.2	25.5	3.3	15.8	25.8	36.1	36.7	36.1	25.8
90°	130.0	125.5	86.8	36.7	0.6	10.5	18.4	28.0	26.2	28.0	18.4
92.5°	156.2	150.4	110.0	53.2	11.1	5.5	15.2	22.5	20.7	22.5	15.2
95°	180.8	177.4	135.6	72.7	27.6	3.6	11.1	17.0	16.8	17.0	11.1
97.5°	207.1	203.6	161.0	96.8	49.1	8.3	8.2	13.5	13.5	13.5	8.2
100°	229.9	228.4	188.9	126.5	75.4	22.9	5.6	11.3	12.1	11.3	5.6
102.5°	266.0	256.1	217.2	154.9	103.7	42.9	11.2	7.1	8.8	7.1	11.2
105°	296.7	287.0	251.1	185.4	137.1	70.6	27.8	9.2	5.6	9.2	27.8
107.5°	326.5	319.6	281.6	215.8	171.6	101.8	51.3	26.4	16.7	26.4	51.3
110°	361.1	352.7	311.3	246.3	207.5	135.0	78.3	48.5	37.5	48.5	78.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	394.3	388.0	338.9	278.1	244.9	171.0	111.4	76.3	65.8	76.3	111.4
115°	419.8	416.4	370.8	307.8	279.5	211.8	148.1	108.7	96.2	108.7	148.1
117.5°	446.9	446.1	394.3	338.3	320.9	248.3	182.0	141.1	128.0	141.1	182.0
120°	480.8	475.2	426.8	368.8	360.4	287.0	219.3	178.5	165.4	178.5	219.3
122.5°	504.3	500.7	454.4	397.7	397.7	326.5	255.3	214.5	200.7	214.5	255.3
125°	525.7	524.2	475.2	426.8	437.9	363.1	295.4	253.9	238.7	253.9	295.4
127.5°	545.0	547.1	502.1	458.6	478.6	400.5	334.9	289.2	273.2	289.2	334.9
130°	561.6	568.5	527.8	487.6	517.4	441.3	370.0	324.4	314.1	324.4	370.0
132.5°	594.1	590.0	554.0	517.4	558.9	478.6	407.4	359.7	347.9	359.7	407.4
135°	610.7	612.1	576.8	542.9	597.6	516.0	442.6	395.7	383.9	395.7	442.6
137.5°	630.8	626.6	594.8	574.0	633.5	551.9	477.2	433.6	415.0	433.6	477.2
140°	646.1	645.4	619.1	601.7	672.3	587.2	513.3	469.1	451.8	469.1	513.3
142.5°	661.3	665.5	642.6	632.2	710.9	624.5	551.4	503.0	486.4	503.0	551.4
145°	671.6	680.7	666.1	671.0	747.6	666.9	584.6	535.4	517.5	535.4	584.6
147.5°	689.0	700.8	683.4	698.0	779.4	703.4	617.8	569.3	553.5	569.3	617.8
150°	712.5	718.0	707.7	735.3	811.9	744.3	651.7	601.8	586.0	601.8	651.7
152.5°	731.2	738.1	726.3	776.1	837.5	781.7	689.0	633.7	615.0	633.7	689.0
155°	750.5	753.3	745.0	815.5	864.5	818.2	718.7	668.9	651.0	668.9	718.7
157.5°	768.5	774.0	764.3	845.2	888.0	850.1	752.6	704.2	688.3	704.2	752.6
160°	787.9	787.9	793.3	879.0	907.4	876.9	788.6	743.0	720.8	743.0	788.6
162.5°	789.9	803.0	832.8	903.2	926.0	901.1	827.3	770.5	751.2	770.5	827.3
165°	820.3	832.1	877.1	924.7	940.6	922.5	875.0	816.2	793.3	816.2	875.0
167.5°	852.1	877.1	912.2	948.8	954.4	942.6	910.8	870.8	850.1	870.8	910.8
170°	903.2	925.5	942.6	958.6	966.3	959.4	933.6	914.4	900.4	914.4	933.6
172.5°	944.0	957.8	964.7	975.2	970.4	967.7	954.4	944.7	937.7	944.7	954.4
175°	969.5	972.3	979.5	975.9	980.1	972.4	973.2	977.2	948.8	977.2	973.2
177.5°	978.6	983.3	980.7	974.5	975.2	973.8	976.7	978.6	974.4	978.6	976.7
180°	979.5	979.5	979.5	979.5	979.5	979.5	979.5	979.5	979.5	979.5	979.5



TEST NUMBER: P392520

CATALOG NUMBER: MWL-2-28-17-UNV-L930-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	642.1	642.1	642.1	642.1	642.1	642.1
2.5°	639.5	638.6	640.2	642.0	640.6	639.2
5°	636.2	634.6	636.2	638.7	637.3	636.0
7.5°	630.6	629.6	631.2	632.3	632.3	630.9
10°	622.5	621.5	623.2	624.9	624.9	623.3
12.5°	612.6	611.2	612.6	614.2	615.0	614.9
15°	600.4	599.6	601.1	601.9	602.6	603.2
17.5°	589.0	588.1	589.0	588.8	589.5	590.9
20°	573.5	572.7	574.1	574.0	575.3	575.2
22.5°	557.0	557.0	557.7	558.3	558.1	557.3
25°	539.7	540.5	540.5	541.0	539.1	538.3
27.5°	521.5	521.7	522.1	521.3	518.6	515.4
30°	502.6	502.8	504.0	499.7	494.8	492.3
32.5°	481.2	483.7	482.6	476.7	469.3	466.0
35°	456.7	460.0	458.7	450.6	439.8	438.2
37.5°	433.6	438.4	435.8	421.0	410.2	411.1
40°	407.3	413.0	408.6	389.7	381.4	383.1
42.5°	379.4	389.1	380.7	358.5	355.1	356.8
45°	347.4	360.3	348.7	329.0	328.1	330.5
47.5°	314.4	332.4	315.1	301.0	303.4	307.6
50°	282.5	297.2	283.9	273.8	280.4	284.5
52.5°	252.9	258.5	254.3	249.4	259.0	261.5
55°	222.6	217.5	224.0	226.3	237.8	241.1
57.5°	192.1	182.2	193.5	203.3	217.2	218.9
60°	162.5	155.0	163.2	177.2	193.5	197.7
62.5°	134.6	131.3	135.2	152.4	170.6	173.0
65°	112.4	111.6	113.1	127.8	146.0	150.9
67.5°	93.5	94.3	93.5	106.5	122.1	130.3
70°	77.0	80.3	77.0	87.7	100.1	109.1
72.5°	62.3	65.6	63.0	71.3	81.2	91.8
75°	50.0	54.1	50.0	55.7	64.7	75.4
77.5°	40.2	43.4	40.2	42.6	55.9	67.8
80°	30.3	33.5	30.3	34.9	56.6	68.0
82.5°	21.2	22.9	21.2	38.2	66.0	75.5
85°	17.0	13.8	18.4	49.3	81.0	89.6
87.5°	15.8	3.3	25.5	65.2	102.6	107.9
90°	10.5	0.6	36.7	86.8	125.5	130.0
92.5°	5.5	11.1	53.2	110.0	150.4	156.2
95°	3.6	27.6	72.7	135.6	177.4	180.8
97.5°	8.3	49.1	96.8	161.0	203.6	207.1
100°	22.9	75.4	126.5	188.9	228.4	229.9
102.5°	42.9	103.7	154.9	217.2	256.1	266.0
105°	70.6	137.1	185.4	251.1	287.0	296.7
107.5°	101.8	171.6	215.8	281.6	319.6	326.5
110°	135.0	207.5	246.3	311.3	352.7	361.1





TEST NUMBER: P392520

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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	171.0	244.9	278.1	338.9	388.0	394.3
115°	211.8	279.5	307.8	370.8	416.4	419.8
117.5°	248.3	320.9	338.3	394.3	446.1	446.9
120°	287.0	360.4	368.8	426.8	475.2	480.8
122.5°	326.5	397.7	397.7	454.4	500.7	504.3
125°	363.1	437.9	426.8	475.2	524.2	525.7
127.5°	400.5	478.6	458.6	502.1	547.1	545.0
130°	441.3	517.4	487.6	527.8	568.5	561.6
132.5°	478.6	558.9	517.4	554.0	590.0	594.1
135°	516.0	597.6	542.9	576.8	612.1	610.7
137.5°	551.9	633.5	574.0	594.8	626.6	630.8
140°	587.2	672.3	601.7	619.1	645.4	646.1
142.5°	624.5	710.9	632.2	642.6	665.5	661.3
145°	666.9	747.6	671.0	666.1	680.7	671.6
147.5°	703.4	779.4	698.0	683.4	700.8	689.0
150°	744.3	811.9	735.3	707.7	718.0	712.5
152.5°	781.7	837.5	776.1	726.3	738.1	731.2
155°	818.2	864.5	815.5	745.0	753.3	750.5
157.5°	850.1	888.0	845.2	764.3	774.0	768.5
160°	876.9	907.4	879.0	793.3	787.9	787.9
162.5°	901.1	926.0	903.2	832.8	803.0	789.9
165°	922.5	940.6	924.7	877.1	832.1	820.3
167.5°	942.6	954.4	948.8	912.2	877.1	852.1
170°	959.4	966.3	958.6	942.6	925.5	903.2
172.5°	967.7	970.4	975.2	964.7	957.8	944.0
175°	972.4	980.1	975.9	979.5	972.3	969.5
177.5°	973.8	975.2	974.5	980.7	983.3	978.6
180°	979.5	979.5	979.5	979.5	979.5	979.5

(END OF REPORT)