

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: P392509

Luminaire Tested: **MWL-2-22-23-UNV-L835-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392509  
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-2-22-23-UNV-L835-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

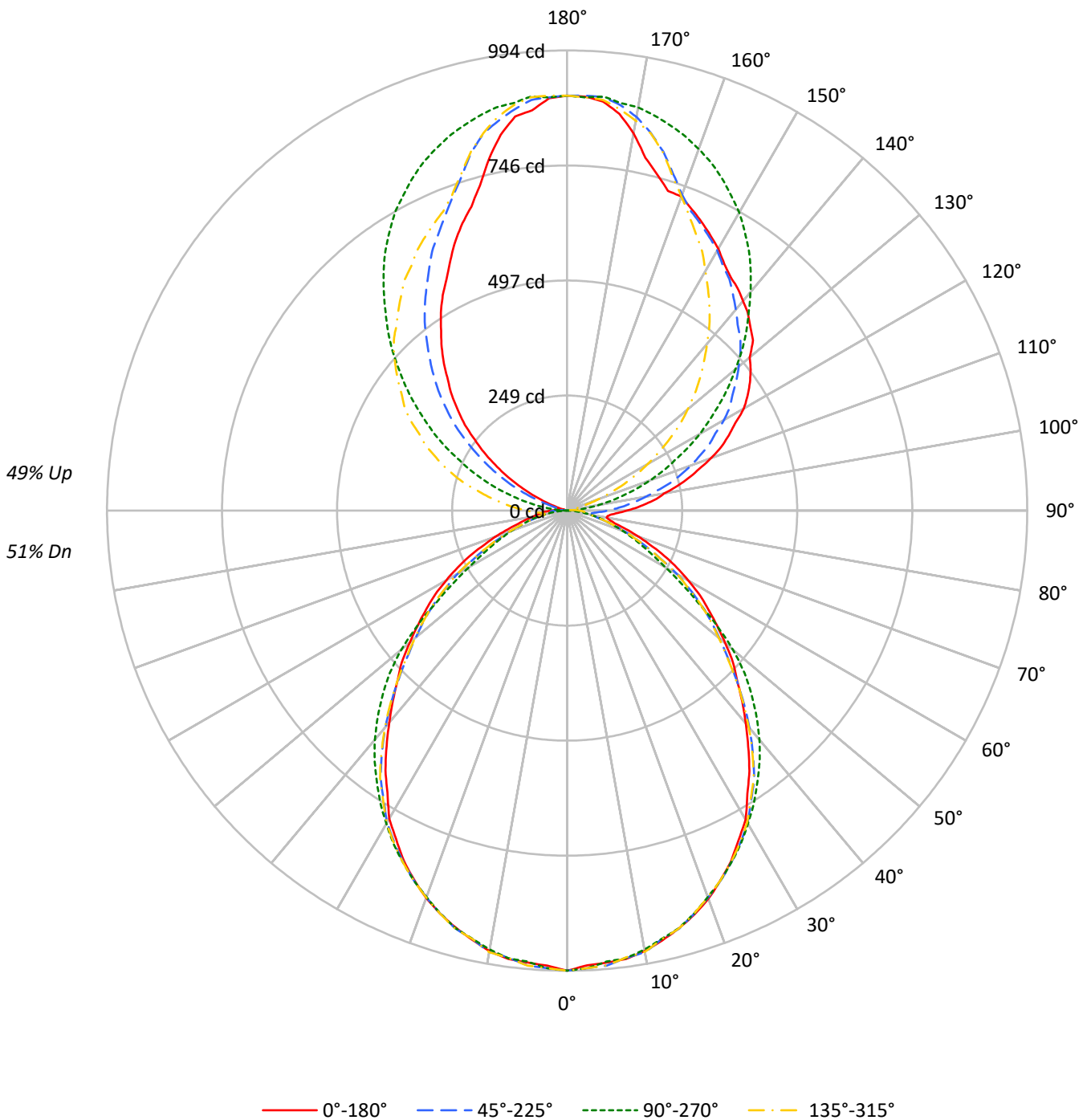
Lumens per Lamp: N/A  
Luminaire Lumens: 4398.0 lumens  
Efficiency: N/A  
Efficacy: 99.3 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: General Diffuse

Input Watts (W): 44.3  
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





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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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	51				51
1	98	94	90	87	91	87	84	81	74	72	70	62	60	59	51	50	49	44				44
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	44	42	37				37
3	82	73	66	60	76	68	62	57	58	53	50	49	46	43	41	38	36	32				32
4	75	65	57	51	70	60	54	48	52	47	43	44	40	37	37	34	31	28				28
5	69	58	50	44	64	54	47	42	47	41	37	40	36	32	33	30	28	25				25
6	64	52	44	39	59	49	42	36	42	37	32	36	32	28	30	27	25	22				22
7	59	47	39	34	55	44	37	32	38	33	29	33	29	25	28	24	22	19				19
8	55	43	35	30	51	40	33	29	35	30	26	30	26	23	26	22	20	17				17
9	51	39	32	27	48	37	30	26	32	27	23	28	24	20	24	20	18	16				16
10	48	36	29	24	44	34	27	23	30	24	21	26	22	19	22	19	16	14				14

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

	0°	90°	180°	270°
0°	12835	12835	12835	12835
5°	12482	11659	12482	11659
10°	12221	10735	12221	10735
15°	11831	9845	11805	9845
20°	11403	8952	11378	8952
25°	10869	8155	10844	8155
30°	10263	7385	10230	7385
35°	9443	6642	9417	6642
40°	8613	5926	8577	5926
45°	7849	5152	7822	5152
50°	7175	4288	7146	4288
55°	6467	3184	6444	3184
60°	5739	2314	5727	2314
65°	4903	1732	4903	1732
70°	3932	1280	3949	1280
75°	2996	905	3049	905
80°	2956	557	2547	557
85°	4221	238	2419	238



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	93.4	2.1
10°-20°	262.9	6.0
20°-30°	385.7	8.8
30°-40°	437.6	9.9
40°-50°	408.2	9.3
50°-60°	319.1	7.3
60°-70°	198.0	4.5
70°-80°	96.1	2.2
80°-90°	54.9	1.2
90°-100°	73.6	1.7
100°-110°	138.2	3.1
110°-120°	238.2	5.4
120°-130°	324.0	7.4
130°-140°	369.3	8.4
140°-150°	368.5	8.4
150°-160°	320.8	7.3
160°-170°	225.5	5.1
170°-180°	84.0	1.9
0°-30°	742.1	16.9
0°-40°	1179.6	26.8
0°-60°	1906.9	43.4
0°-90°	2256.0	51.3
90°-120°	449.9	10.2
90°-150°	1511.7	34.4
90°-180°	2142.0	48.7
0°-180°	4398.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	994	994	994	994	994	
5°	980	978	980	978	980	93
15°	934	934	932	934	934	263
25°	837	839	835	839	837	384
35°	686	716	684	716	686	428
45°	519	564	517	564	519	403
55°	373	343	371	343	373	334
65°	232	178	232	178	232	229
75°	107	86	109	86	107	121
85°	96	20	55	20	96	77
90°	128	1	34	1	128	71
95°	172	25	22	25	172	149
105°	272	126	5	126	272	287
115°	385	256	89	256	385	382
125°	482	402	219	402	482	430
135°	560	548	352	548	560	432
145°	616	685	475	685	616	388
155°	688	792	597	792	688	317
165°	752	861	727	861	752	213
175°	887	898	868	898	887	83
180°	896	896	896	896	896	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7	993.7
2.5°	983.1	994.0	989.5	989.2	989.2	988.5	989.5	994.0	983.8	994.0	989.5
5°	980.2	988.2	986.6	985.6	977.9	985.6	986.0	988.2	980.2	988.2	986.0
7.5°	977.0	981.2	974.4	976.9	975.0	976.3	973.7	980.5	977.0	980.5	973.7
10°	966.0	967.6	968.6	963.8	962.8	963.1	967.9	966.4	966.0	966.4	967.9
12.5°	950.8	952.1	947.6	950.5	947.0	950.5	947.6	950.9	949.5	950.9	947.6
15°	934.1	938.6	935.0	932.1	933.5	931.5	934.4	937.4	932.1	937.4	934.4
17.5°	914.7	916.4	912.8	912.2	912.2	912.2	912.2	915.7	912.8	915.7	912.2
20°	892.5	892.8	889.6	888.0	888.3	887.4	889.0	891.5	890.5	891.5	889.0
22.5°	864.7	869.6	865.4	867.7	865.1	867.0	864.8	868.3	863.5	868.3	864.8
25°	836.7	839.6	839.0	842.6	839.0	841.9	837.7	837.7	834.8	837.7	837.7
27.5°	801.9	805.7	810.0	813.2	811.9	812.6	808.7	803.9	800.0	803.9	808.7
30°	770.9	769.0	779.6	781.9	781.0	780.7	777.8	767.2	768.4	767.2	777.8
32.5°	724.5	730.3	740.0	751.0	750.7	749.7	738.1	727.8	722.0	727.8	738.1
35°	686.2	690.1	704.6	717.2	716.2	715.2	702.7	688.1	684.3	688.1	702.7
37.5°	642.7	643.7	659.1	680.4	683.0	678.5	657.2	641.7	640.8	641.7	657.2
40°	600.1	599.2	612.7	637.2	646.3	635.9	610.2	596.7	597.6	596.7	610.2
42.5°	559.5	555.7	564.7	596.6	605.7	595.3	562.8	553.1	557.0	553.1	562.8
45°	519.2	514.4	517.3	546.3	564.1	545.0	514.8	512.5	517.4	512.5	514.8
47.5°	486.3	473.8	470.9	495.4	519.6	494.7	468.3	471.9	484.5	471.9	468.3
50°	445.7	438.9	429.3	447.1	467.7	445.8	426.8	436.4	443.9	436.4	426.8
52.5°	408.0	405.1	391.0	398.7	407.7	397.5	389.0	402.6	406.2	402.6	389.0
55°	372.6	367.8	352.3	349.7	343.3	348.4	350.4	365.8	371.3	365.8	350.4
57.5°	339.7	333.0	311.7	303.3	292.0	302.0	309.7	331.0	338.5	331.0	309.7
60°	302.3	296.5	274.3	253.4	244.7	252.7	273.0	295.2	301.7	295.2	273.0
62.5°	267.5	257.8	230.7	210.8	208.2	210.1	229.5	256.6	266.9	256.6	229.5
65°	232.1	217.6	194.4	175.0	178.2	174.4	193.7	216.9	232.1	216.9	193.7
67.5°	194.4	181.8	161.5	143.4	151.1	143.4	160.8	181.1	194.4	181.1	160.8
70°	163.7	148.2	131.8	118.3	127.0	118.3	131.8	148.9	164.4	148.9	131.8
72.5°	132.8	119.2	105.7	97.0	103.2	96.4	105.7	119.9	134.0	119.9	105.7
75°	106.7	94.1	82.9	76.1	85.8	76.1	83.5	94.8	108.6	94.8	83.5
77.5°	93.3	78.2	62.6	60.6	68.4	60.6	63.1	76.4	90.8	76.4	63.1
80°	86.7	74.6	49.9	45.2	50.0	45.2	48.6	64.4	74.7	64.4	48.6
82.5°	88.3	78.8	49.8	32.6	35.5	32.6	42.2	56.0	64.3	56.0	42.2
85°	96.3	90.0	56.9	25.7	20.0	24.5	38.6	51.4	55.2	51.4	38.6
87.5°	110.4	107.6	70.4	29.4	4.8	20.6	34.3	46.9	45.3	46.9	34.3
90°	128.3	125.8	88.4	36.9	0.7	12.9	25.7	36.7	33.5	36.7	25.7
92.5°	151.2	146.6	106.9	49.7	10.2	6.1	20.3	29.6	27.4	29.6	20.3
95°	172.0	168.3	127.4	66.7	25.3	3.5	13.5	21.6	22.2	21.6	13.5
97.5°	195.1	189.9	148.3	89.5	45.8	8.5	8.6	16.1	18.0	16.1	8.6
100°	212.9	209.5	173.0	116.7	69.9	21.9	5.4	10.8	13.7	10.8	5.4
102.5°	243.2	234.6	198.9	142.6	95.8	40.1	10.4	7.0	7.9	7.0	10.4
105°	271.6	262.7	229.9	169.8	125.5	64.8	25.6	8.5	5.4	8.5	25.6
107.5°	298.8	292.5	257.7	197.7	157.1	93.3	47.1	24.4	15.5	24.4	47.1
110°	330.4	322.8	284.9	225.4	190.0	123.7	71.8	44.6	34.5	44.6	71.8



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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°	360.8	355.1	310.2	254.5	224.2	156.6	102.1	69.9	60.4	69.9	102.1
115°	385.2	381.0	339.2	281.7	255.8	193.8	135.7	99.6	89.2	99.6	135.7
117.5°	409.8	409.2	360.8	309.5	293.8	227.4	166.6	130.3	118.3	130.3	166.6
120°	440.8	435.7	391.5	338.4	330.7	263.7	201.7	164.5	152.4	164.5	201.7
122.5°	462.3	459.2	416.8	364.9	364.9	299.8	234.6	197.4	184.7	197.4	234.6
125°	481.9	480.6	435.7	391.5	401.6	333.3	271.4	233.3	219.4	233.3	271.4
127.5°	499.6	501.5	460.4	420.6	438.9	367.5	307.3	265.6	251.0	265.6	307.3
130°	514.8	521.1	483.8	447.2	474.3	404.7	339.6	297.8	288.4	297.8	339.6
132.5°	544.5	540.7	507.8	474.3	512.2	438.9	373.8	330.1	319.4	330.1	373.8
135°	559.7	561.0	528.7	497.7	547.6	473.1	406.1	363.0	352.3	363.0	406.1
137.5°	578.0	574.2	545.1	526.2	580.5	506.0	437.6	397.8	380.7	397.8	437.6
140°	591.2	590.7	566.6	551.5	616.0	538.2	469.9	429.4	413.6	429.4	469.9
142.5°	605.2	609.0	588.2	579.3	651.4	572.3	504.7	460.4	445.2	460.4	504.7
145°	615.6	623.8	610.6	614.1	684.9	610.3	536.0	491.1	474.6	491.1	536.0
147.5°	631.5	642.2	626.4	639.7	714.0	644.7	566.3	522.1	507.5	522.1	566.3
150°	652.9	658.1	648.5	672.9	743.7	681.1	597.3	551.8	537.3	551.8	597.3
152.5°	670.1	676.3	665.6	710.2	767.1	715.2	631.5	580.9	563.8	580.9	631.5
155°	687.8	690.3	682.7	746.3	791.7	748.8	658.7	613.1	596.7	613.1	658.7
157.5°	704.2	709.2	699.5	773.4	813.3	777.9	688.7	645.4	630.8	645.4	688.7
160°	721.9	721.9	726.0	805.1	831.0	803.1	721.6	680.8	660.6	680.8	721.6
162.5°	723.8	735.8	762.0	827.2	848.0	825.3	757.0	706.1	688.3	706.1	757.0
165°	751.6	761.4	802.5	846.7	861.3	844.9	800.6	746.8	726.9	746.8	800.6
167.5°	780.7	802.5	835.4	868.9	873.9	863.2	834.2	796.8	778.9	796.8	834.2
170°	827.2	846.7	863.2	877.1	884.1	877.8	855.0	836.7	824.6	836.7	855.0
172.5°	864.4	877.1	883.5	892.3	887.8	885.3	873.9	865.1	858.8	865.1	873.9
175°	886.9	890.4	896.1	893.9	897.7	890.7	890.4	894.8	867.9	894.8	890.4
177.5°	895.1	900.5	897.3	892.7	893.3	892.0	893.5	896.1	891.3	896.1	893.5
180°	896.1	896.1	896.1	896.1	896.1	896.1	896.1	896.1	896.1	896.1	896.1



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	993.7	993.7	993.7	993.7	993.7	993.7
2.5°	988.5	989.2	989.2	989.5	994.0	983.1
5°	985.6	977.9	985.6	986.6	988.2	980.2
7.5°	976.3	975.0	976.9	974.4	981.2	977.0
10°	963.1	962.8	963.8	968.6	967.6	966.0
12.5°	950.5	947.0	950.5	947.6	952.1	950.8
15°	931.5	933.5	932.1	935.0	938.6	934.1
17.5°	912.2	912.2	912.2	912.8	916.4	914.7
20°	887.4	888.3	888.0	889.6	892.8	892.5
22.5°	867.0	865.1	867.7	865.4	869.6	864.7
25°	841.9	839.0	842.6	839.0	839.6	836.7
27.5°	812.6	811.9	813.2	810.0	805.7	801.9
30°	780.7	781.0	781.9	779.6	769.0	770.9
32.5°	749.7	750.7	751.0	740.0	730.3	724.5
35°	715.2	716.2	717.2	704.6	690.1	686.2
37.5°	678.5	683.0	680.4	659.1	643.7	642.7
40°	635.9	646.3	637.2	612.7	599.2	600.1
42.5°	595.3	605.7	596.6	564.7	555.7	559.5
45°	545.0	564.1	546.3	517.3	514.4	519.2
47.5°	494.7	519.6	495.4	470.9	473.8	486.3
50°	445.8	467.7	447.1	429.3	438.9	445.7
52.5°	397.5	407.7	398.7	391.0	405.1	408.0
55°	348.4	343.3	349.7	352.3	367.8	372.6
57.5°	302.0	292.0	303.3	311.7	333.0	339.7
60°	252.7	244.7	253.4	274.3	296.5	302.3
62.5°	210.1	208.2	210.8	230.7	257.8	267.5
65°	174.4	178.2	175.0	194.4	217.6	232.1
67.5°	143.4	151.1	143.4	161.5	181.8	194.4
70°	118.3	127.0	118.3	131.8	148.2	163.7
72.5°	96.4	103.2	97.0	105.7	119.2	132.8
75°	76.1	85.8	76.1	82.9	94.1	106.7
77.5°	60.6	68.4	60.6	62.6	78.2	93.3
80°	45.2	50.0	45.2	49.9	74.6	86.7
82.5°	32.6	35.5	32.6	49.8	78.8	88.3
85°	24.5	20.0	25.7	56.9	90.0	96.3
87.5°	20.6	4.8	29.4	70.4	107.6	110.4
90°	12.9	0.7	36.9	88.4	125.8	128.3
92.5°	6.1	10.2	49.7	106.9	146.6	151.2
95°	3.5	25.3	66.7	127.4	168.3	172.0
97.5°	8.5	45.8	89.5	148.3	189.9	195.1
100°	21.9	69.9	116.7	173.0	209.5	212.9
102.5°	40.1	95.8	142.6	198.9	234.6	243.2
105°	64.8	125.5	169.8	229.9	262.7	271.6
107.5°	93.3	157.1	197.7	257.7	292.5	298.8
110°	123.7	190.0	225.4	284.9	322.8	330.4





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	156.6	224.2	254.5	310.2	355.1	360.8
115°	193.8	255.8	281.7	339.2	381.0	385.2
117.5°	227.4	293.8	309.5	360.8	409.2	409.8
120°	263.7	330.7	338.4	391.5	435.7	440.8
122.5°	299.8	364.9	364.9	416.8	459.2	462.3
125°	333.3	401.6	391.5	435.7	480.6	481.9
127.5°	367.5	438.9	420.6	460.4	501.5	499.6
130°	404.7	474.3	447.2	483.8	521.1	514.8
132.5°	438.9	512.2	474.3	507.8	540.7	544.5
135°	473.1	547.6	497.7	528.7	561.0	559.7
137.5°	506.0	580.5	526.2	545.1	574.2	578.0
140°	538.2	616.0	551.5	566.6	590.7	591.2
142.5°	572.3	651.4	579.3	588.2	609.0	605.2
145°	610.3	684.9	614.1	610.6	623.8	615.6
147.5°	644.7	714.0	639.7	626.4	642.2	631.5
150°	681.1	743.7	672.9	648.5	658.1	652.9
152.5°	715.2	767.1	710.2	665.6	676.3	670.1
155°	748.8	791.7	746.3	682.7	690.3	687.8
157.5°	777.9	813.3	773.4	699.5	709.2	704.2
160°	803.1	831.0	805.1	726.0	721.9	721.9
162.5°	825.3	848.0	827.2	762.0	735.8	723.8
165°	844.9	861.3	846.7	802.5	761.4	751.6
167.5°	863.2	873.9	868.9	835.4	802.5	780.7
170°	877.8	884.1	877.1	863.2	846.7	827.2
172.5°	885.3	887.8	892.3	883.5	877.1	864.4
175°	890.7	897.7	893.9	896.1	890.4	886.9
177.5°	892.0	893.3	892.7	897.3	900.5	895.1
180°	896.1	896.1	896.1	896.1	896.1	896.1

(END OF REPORT)