

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: P392527

Luminaire Tested: **MWL-2-28-31-UNV-L935-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392527
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-2-28-31-UNV-L935-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

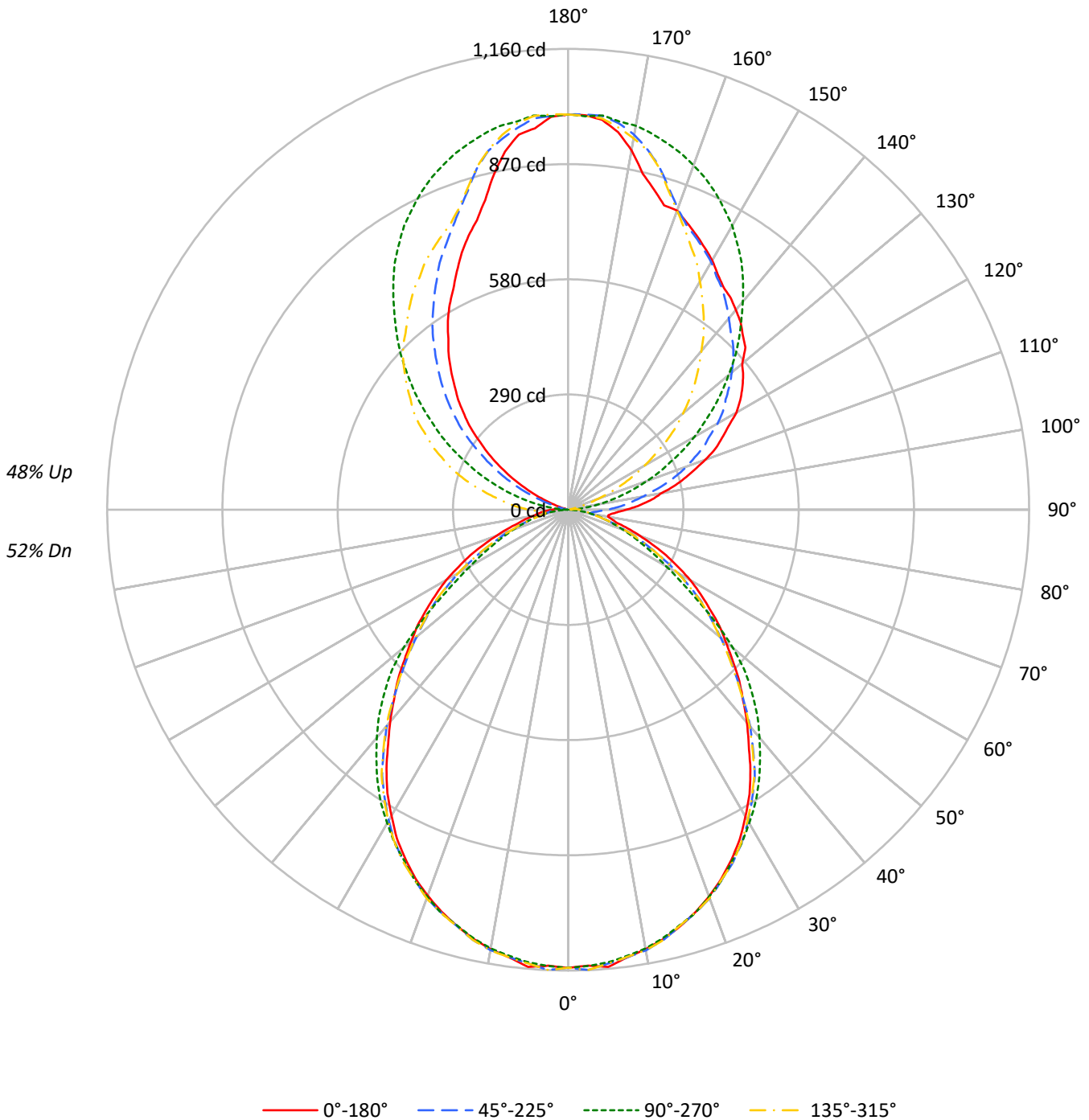
Lumens per Lamp: N/A
Luminaire Lumens: 5008.3 lumens
Efficiency: N/A
Efficacy: 75.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 66.256
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: P392527
CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P392527

CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58	52
1	99	94	91	87	91	88	84	81	75	72	70	63	61	60	52	51	50	45
2	90	83	77	72	83	77	72	67	66	62	59	56	53	51	46	44	43	38
3	83	73	66	60	76	68	62	57	59	54	50	50	46	43	41	39	37	33
4	76	65	57	51	70	61	54	49	52	47	43	45	41	37	37	34	32	29
5	70	58	50	44	64	54	47	42	47	42	37	40	36	33	34	31	28	25
6	64	52	44	39	59	49	42	37	43	37	33	36	32	29	31	28	25	22
7	60	47	40	34	55	44	37	32	39	33	29	33	29	26	28	25	22	20
8	55	43	35	30	51	40	34	29	35	30	26	31	26	23	26	23	20	18
9	52	39	32	27	48	37	30	26	32	27	23	28	24	21	24	21	18	16
10	48	36	29	24	45	34	28	23	30	25	21	26	22	19	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	14894	14894	14894	14894
5°	14710	13637	14710	13637
10°	14210	12502	14210	12502
15°	13755	11424	13728	11424
20°	13237	10448	13209	10448
25°	12625	9484	12596	9484
30°	11872	8611	11836	8611
35°	10999	7757	10970	7757
40°	10047	6864	10005	6864
45°	9196	5976	9164	5976
50°	8327	4968	8294	4968
55°	7532	3687	7510	3687
60°	6739	2694	6724	2694
65°	5738	2001	5738	2001
70°	4604	1486	4619	1486
75°	3554	1037	3613	1037
80°	3464	659	3007	659
85°	4900	277	2902	277



TEST NUMBER: P392527

CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	108.7	2.2
10°-20°	306.0	6.1
20°-30°	448.6	9.0
30°-40°	509.0	10.2
40°-50°	474.9	9.5
50°-60°	372.6	7.4
60°-70°	232.6	4.6
70°-80°	112.8	2.3
80°-90°	63.8	1.3
90°-100°	82.9	1.7
100°-110°	153.6	3.1
110°-120°	264.5	5.3
120°-130°	359.5	7.2
130°-140°	410.0	8.2
140°-150°	408.9	8.2
150°-160°	356.1	7.1
160°-170°	250.4	5.0
170°-180°	93.2	1.9
0°-30°	863.3	17.2
0°-40°	1372.3	27.4
0°-60°	2219.8	44.3
0°-90°	2629.1	52.5
90°-120°	501.1	10.0
90°-150°	1679.5	33.5
90°-180°	2379.0	47.5
0°-180°	5008.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1153	1153	1153	1153	1153	
5°	1155	1144	1155	1144	1155	109
15°	1086	1083	1084	1083	1086	306
25°	972	976	970	976	972	447
35°	799	836	797	836	799	499
45°	608	654	606	654	608	468
55°	434	398	433	398	434	390
65°	272	206	272	206	272	268
75°	127	98	129	98	127	143
85°	112	23	66	23	112	89
90°	145	2	40	2	145	81
95°	193	29	26	29	193	167
105°	302	139	7	139	302	319
115°	427	284	98	284	427	424
125°	535	445	244	445	535	478
135°	621	608	391	608	621	480
145°	682	760	526	760	682	430
155°	763	879	662	879	763	352
165°	834	956	807	956	834	237
175°	985	996	964	996	985	92
180°	995	995	995	995	995	



TEST NUMBER: P392527

CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1
2.5°	1148.5	1155.7	1159.6	1148.7	1149.5	1147.9	1159.6	1155.7	1149.1	1155.7	1159.6
5°	1155.2	1147.3	1147.1	1146.3	1143.8	1146.3	1146.4	1147.3	1155.2	1147.3	1146.4
7.5°	1136.6	1142.2	1136.4	1135.4	1132.9	1134.7	1135.7	1141.4	1136.6	1141.4	1135.7
10°	1123.2	1127.2	1126.3	1120.6	1121.3	1119.8	1125.7	1125.8	1123.2	1125.8	1125.7
12.5°	1107.0	1109.7	1108.9	1102.3	1104.1	1102.3	1108.9	1108.3	1105.6	1108.3	1108.9
15°	1086.0	1085.5	1084.8	1082.2	1083.2	1081.6	1084.1	1084.1	1083.9	1084.1	1084.1
17.5°	1062.7	1064.6	1063.9	1064.0	1064.0	1064.0	1063.2	1063.9	1060.5	1063.9	1063.2
20°	1036.0	1040.2	1041.3	1036.5	1036.7	1035.8	1040.7	1038.8	1033.8	1038.8	1040.7
22.5°	1006.1	1006.9	1008.8	1002.3	1009.2	1001.7	1008.1	1005.5	1004.7	1005.5	1008.1
25°	971.9	972.7	980.3	976.5	975.8	975.8	979.0	970.6	969.7	970.6	979.0
27.5°	935.1	935.1	945.3	942.0	945.7	941.4	943.9	933.1	933.1	933.1	943.9
30°	891.7	899.2	905.1	916.9	910.7	915.5	903.0	897.2	889.0	897.2	903.0
32.5°	849.2	853.3	861.7	870.2	876.3	868.8	859.6	850.6	846.4	850.6	859.6
35°	799.3	799.3	818.5	834.3	836.4	832.3	816.4	797.2	797.2	797.2	816.4
37.5°	745.9	747.5	764.3	788.4	792.8	786.4	762.2	745.5	743.8	745.5	762.2
40°	700.0	696.6	712.5	743.5	748.7	742.1	709.6	693.9	697.1	693.9	709.6
42.5°	651.6	646.6	654.2	692.6	705.2	691.3	652.1	643.7	648.7	643.7	652.1
45°	608.3	598.2	600.0	635.8	654.3	634.5	597.2	596.2	606.2	596.2	597.2
47.5°	560.7	557.4	550.7	574.3	604.3	573.6	547.9	555.3	558.6	555.3	547.9
50°	517.3	510.7	500.7	520.0	541.9	518.6	497.9	507.9	515.2	507.9	497.9
52.5°	479.0	473.1	454.1	465.8	470.1	464.3	452.0	470.4	476.8	470.4	452.0
55°	434.0	433.3	414.0	408.3	397.6	406.9	411.9	431.1	432.7	431.1	411.9
57.5°	394.0	392.4	364.8	355.0	335.0	353.5	362.8	390.3	392.6	390.3	362.8
60°	355.0	349.1	319.1	294.9	284.9	294.3	317.6	347.7	354.2	347.7	317.6
62.5°	311.6	308.2	271.6	245.8	243.4	245.1	270.1	306.8	310.8	306.8	270.1
65°	271.6	259.1	228.2	204.9	205.9	204.2	227.5	258.4	271.6	258.4	227.5
67.5°	229.0	216.5	189.8	168.3	175.0	168.3	189.1	215.9	229.0	215.9	189.1
70°	191.7	175.0	155.0	137.5	147.5	137.5	155.0	175.7	192.3	175.7	155.0
72.5°	157.5	140.0	124.9	112.4	120.8	111.7	124.9	140.6	158.9	140.6	124.9
75°	126.6	110.7	96.6	89.9	98.3	89.9	97.3	111.4	128.7	111.4	97.3
77.5°	112.2	92.6	73.3	69.9	79.9	69.9	74.0	90.5	109.3	90.5	74.0
80°	101.6	87.4	58.8	52.4	59.1	52.4	57.3	76.3	88.2	76.3	57.3
82.5°	102.5	92.1	58.0	37.4	40.7	37.4	49.5	66.8	75.8	66.8	49.5
85°	111.8	103.9	65.1	30.4	23.2	29.0	44.7	61.2	66.2	61.2	44.7
87.5°	126.2	122.4	79.6	34.2	6.6	24.3	39.5	55.0	53.9	55.0	39.5
90°	145.2	142.4	99.0	42.2	1.5	15.6	29.5	43.4	40.0	43.4	29.5
92.5°	171.0	165.2	119.9	56.5	12.1	8.1	23.8	35.4	33.6	35.4	23.8
95°	192.6	188.4	143.4	73.9	28.9	3.7	17.1	25.6	26.3	25.6	17.1
97.5°	217.6	212.4	165.2	99.1	50.7	9.2	10.0	19.5	21.2	19.5	10.0
100°	237.5	234.3	191.7	129.3	77.3	24.0	5.8	13.9	16.4	13.9	5.8
102.5°	271.6	260.8	220.5	158.0	106.1	44.3	11.4	8.1	10.6	8.1	11.4
105°	302.0	292.1	254.8	188.2	139.1	71.7	28.2	10.1	6.6	10.1	28.2
107.5°	332.2	325.1	286.6	219.0	174.1	103.3	52.9	27.6	17.8	27.6	52.9
110°	367.3	358.8	316.8	249.9	210.6	136.9	80.2	50.0	38.9	50.0	80.2



TEST NUMBER: P392527

CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	400.9	394.6	344.8	283.0	248.5	174.3	113.9	78.2	67.6	78.2	113.9
115°	426.9	423.4	377.1	313.2	284.4	215.7	151.1	111.1	98.5	111.1	151.1
117.5°	454.2	453.6	400.9	344.1	326.5	252.8	185.5	144.1	130.7	144.1	185.5
120°	488.7	483.1	433.9	375.0	366.6	292.1	223.4	182.0	168.6	182.0	223.4
122.5°	513.3	509.0	461.9	404.4	404.4	332.2	259.9	218.5	205.3	218.5	259.9
125°	535.1	533.7	483.9	433.9	445.2	369.3	301.4	259.3	243.9	259.3	301.4
127.5°	554.8	556.8	511.3	467.0	487.4	408.2	341.4	295.1	279.0	295.1	341.4
130°	571.6	578.6	537.2	496.5	526.7	449.5	377.2	330.8	320.3	330.8	377.2
132.5°	604.5	600.4	563.8	526.7	568.7	487.4	415.1	366.6	354.7	366.6	415.1
135°	621.4	622.8	587.0	552.6	608.0	525.2	450.9	403.2	391.2	403.2	450.9
137.5°	641.7	637.5	605.2	584.2	644.5	561.7	486.0	441.7	422.8	441.7	486.0
140°	656.4	655.8	629.1	612.3	683.8	597.6	521.8	476.8	459.2	476.8	521.8
142.5°	671.9	676.2	653.0	643.2	723.1	635.4	560.3	511.3	494.4	511.3	560.3
145°	682.4	692.4	676.8	681.7	760.3	677.5	594.0	545.0	525.9	545.0	594.0
147.5°	700.8	712.8	695.2	709.0	792.6	714.7	628.5	579.4	563.3	579.4	628.5
150°	724.7	730.3	719.7	747.0	825.5	756.1	663.0	612.4	596.3	612.4	663.0
152.5°	743.6	750.6	738.7	788.3	851.5	794.0	700.8	644.7	625.7	644.7	700.8
155°	763.2	766.1	757.6	828.4	878.9	831.1	731.0	680.5	662.2	680.5	731.0
157.5°	781.5	787.1	776.4	858.5	902.8	863.4	764.5	716.3	700.1	716.3	764.5
160°	801.1	801.1	805.9	893.6	922.4	891.5	801.0	755.6	733.1	755.6	801.0
162.5°	803.2	816.6	845.9	918.2	941.3	916.1	840.4	783.6	764.0	783.6	840.4
165°	834.1	845.2	890.9	940.0	956.1	937.8	888.7	829.1	806.7	829.1	888.7
167.5°	866.4	890.9	927.3	964.5	970.1	958.2	925.9	884.5	864.3	884.5	925.9
170°	918.2	940.0	958.2	973.6	981.4	974.4	949.1	928.7	915.4	928.7	949.1
172.5°	958.8	973.6	980.6	990.4	985.5	982.8	970.1	960.3	952.4	960.3	970.1
175°	984.7	988.4	994.8	992.1	996.2	988.5	988.4	993.3	963.7	993.3	988.4
177.5°	993.9	998.7	996.0	990.6	991.3	989.8	991.9	993.9	989.7	993.9	991.9
180°	994.8	994.8	994.8	994.8	994.8	994.8	994.8	994.8	994.8	994.8	994.8



TEST NUMBER: P392527

CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	1153.1	1153.1	1153.1	1153.1	1153.1	1153.1
2.5°	1147.9	1149.5	1148.7	1159.6	1155.7	1148.5
5°	1146.3	1143.8	1146.3	1147.1	1147.3	1155.2
7.5°	1134.7	1132.9	1135.4	1136.4	1142.2	1136.6
10°	1119.8	1121.3	1120.6	1126.3	1127.2	1123.2
12.5°	1102.3	1104.1	1102.3	1108.9	1109.7	1107.0
15°	1081.6	1083.2	1082.2	1084.8	1085.5	1086.0
17.5°	1064.0	1064.0	1064.0	1063.9	1064.6	1062.7
20°	1035.8	1036.7	1036.5	1041.3	1040.2	1036.0
22.5°	1001.7	1009.2	1002.3	1008.8	1006.9	1006.1
25°	975.8	975.8	976.5	980.3	972.7	971.9
27.5°	941.4	945.7	942.0	945.3	935.1	935.1
30°	915.5	910.7	916.9	905.1	899.2	891.7
32.5°	868.8	876.3	870.2	861.7	853.3	849.2
35°	832.3	836.4	834.3	818.5	799.3	799.3
37.5°	786.4	792.8	788.4	764.3	747.5	745.9
40°	742.1	748.7	743.5	712.5	696.6	700.0
42.5°	691.3	705.2	692.6	654.2	646.6	651.6
45°	634.5	654.3	635.8	600.0	598.2	608.3
47.5°	573.6	604.3	574.3	550.7	557.4	560.7
50°	518.6	541.9	520.0	500.7	510.7	517.3
52.5°	464.3	470.1	465.8	454.1	473.1	479.0
55°	406.9	397.6	408.3	414.0	433.3	434.0
57.5°	353.5	335.0	355.0	364.8	392.4	394.0
60°	294.3	284.9	294.9	319.1	349.1	355.0
62.5°	245.1	243.4	245.8	271.6	308.2	311.6
65°	204.2	205.9	204.9	228.2	259.1	271.6
67.5°	168.3	175.0	168.3	189.8	216.5	229.0
70°	137.5	147.5	137.5	155.0	175.0	191.7
72.5°	111.7	120.8	112.4	124.9	140.0	157.5
75°	89.9	98.3	89.9	96.6	110.7	126.6
77.5°	69.9	79.9	69.9	73.3	92.6	112.2
80°	52.4	59.1	52.4	58.8	87.4	101.6
82.5°	37.4	40.7	37.4	58.0	92.1	102.5
85°	29.0	23.2	30.4	65.1	103.9	111.8
87.5°	24.3	6.6	34.2	79.6	122.4	126.2
90°	15.6	1.5	42.2	99.0	142.4	145.2
92.5°	8.1	12.1	56.5	119.9	165.2	171.0
95°	3.7	28.9	73.9	143.4	188.4	192.6
97.5°	9.2	50.7	99.1	165.2	212.4	217.6
100°	24.0	77.3	129.3	191.7	234.3	237.5
102.5°	44.3	106.1	158.0	220.5	260.8	271.6
105°	71.7	139.1	188.2	254.8	292.1	302.0
107.5°	103.3	174.1	219.0	286.6	325.1	332.2
110°	136.9	210.6	249.9	316.8	358.8	367.3



TEST NUMBER: P392527

CATALOG NUMBER: MWL-2-28-31-UNV-L935-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	174.3	248.5	283.0	344.8	394.6	400.9
115°	215.7	284.4	313.2	377.1	423.4	426.9
117.5°	252.8	326.5	344.1	400.9	453.6	454.2
120°	292.1	366.6	375.0	433.9	483.1	488.7
122.5°	332.2	404.4	404.4	461.9	509.0	513.3
125°	369.3	445.2	433.9	483.9	533.7	535.1
127.5°	408.2	487.4	467.0	511.3	556.8	554.8
130°	449.5	526.7	496.5	537.2	578.6	571.6
132.5°	487.4	568.7	526.7	563.8	600.4	604.5
135°	525.2	608.0	552.6	587.0	622.8	621.4
137.5°	561.7	644.5	584.2	605.2	637.5	641.7
140°	597.6	683.8	612.3	629.1	655.8	656.4
142.5°	635.4	723.1	643.2	653.0	676.2	671.9
145°	677.5	760.3	681.7	676.8	692.4	682.4
147.5°	714.7	792.6	709.0	695.2	712.8	700.8
150°	756.1	825.5	747.0	719.7	730.3	724.7
152.5°	794.0	851.5	788.3	738.7	750.6	743.6
155°	831.1	878.9	828.4	757.6	766.1	763.2
157.5°	863.4	902.8	858.5	776.4	787.1	781.5
160°	891.5	922.4	893.6	805.9	801.1	801.1
162.5°	916.1	941.3	918.2	845.9	816.6	803.2
165°	937.8	956.1	940.0	890.9	845.2	834.1
167.5°	958.2	970.1	964.5	927.3	890.9	866.4
170°	974.4	981.4	973.6	958.2	940.0	918.2
172.5°	982.8	985.5	990.4	980.6	973.6	958.8
175°	988.5	996.2	992.1	994.8	988.4	984.7
177.5°	989.8	991.3	990.6	996.0	998.7	993.9
180°	994.8	994.8	994.8	994.8	994.8	994.8

(END OF REPORT)