

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: P392533

Luminaire Tested: **MWL-2-35-13-UNV-L935-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392533  
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-2-35-13-UNV-L935-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

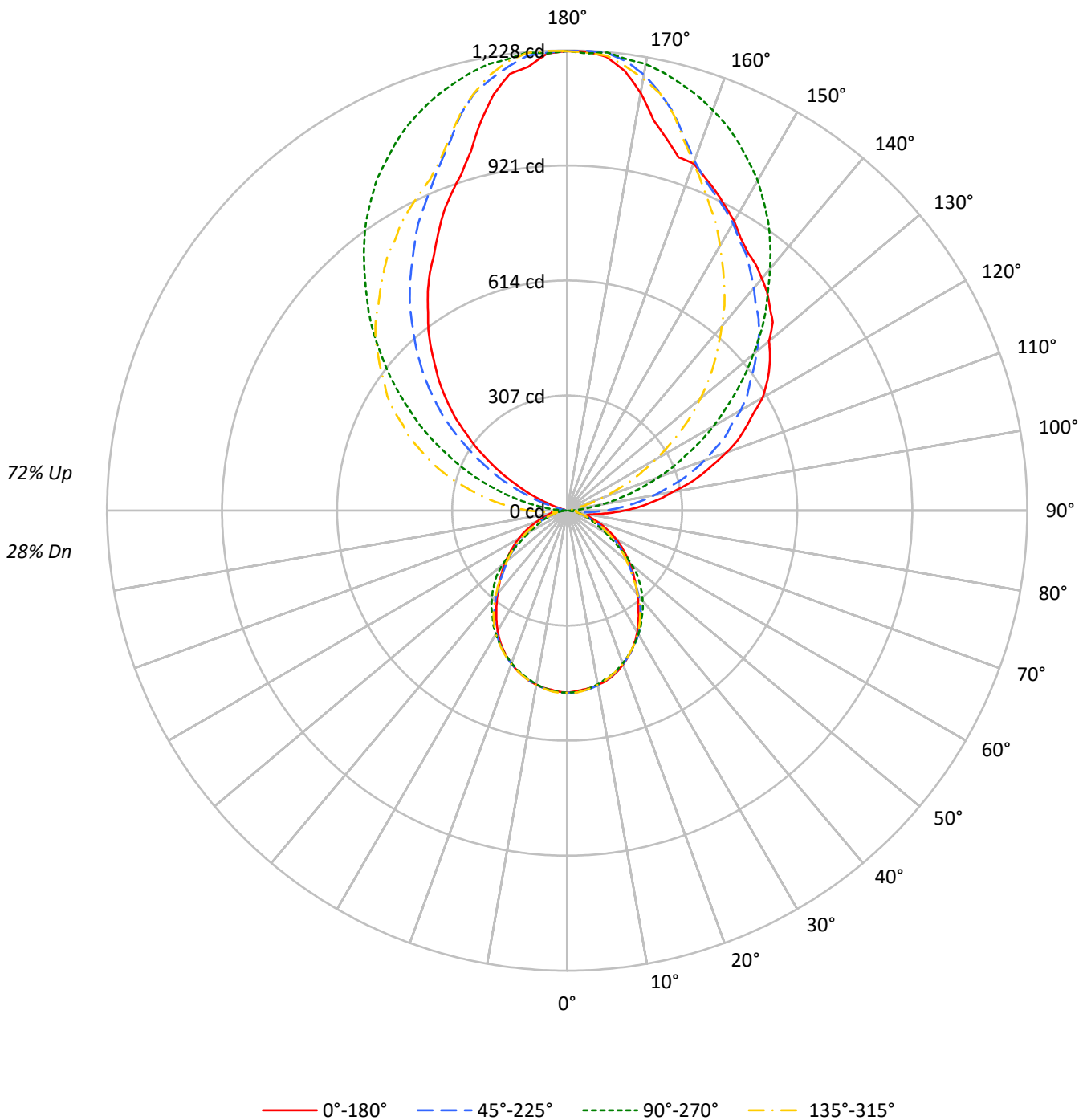
Lumens per Lamp: N/A  
Luminaire Lumens: 4036.6 lumens  
Efficiency: N/A  
Efficacy: 73.9 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24  
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')  
CIE Type: Semi-Indirect

Input Watts (W): 54.641  
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	50	30	10	0	
RCR																						
0	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28				
1	93	89	85	81	83	79	76	73	62	60	58	46	45	44	31	31	30	23				
2	85	78	72	67	75	70	65	60	55	51	48	41	39	37	28	27	26	20				
3	77	68	61	56	69	61	55	51	48	44	41	36	33	31	25	23	22	17				
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	22	21	19	15				
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	20	18	17	13				
6	60	48	40	35	53	43	37	32	35	30	26	26	23	20	18	16	15	12				
7	55	43	36	30	49	39	33	28	31	26	23	24	21	18	17	15	13	10				
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9				
9	47	36	29	24	42	32	26	22	26	21	18	20	17	14	14	12	11	8				
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8				

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

	0°	90°	180°	270°
0°	6275	6275	6275	6275
5°	6111	5743	6111	5743
10°	5976	5249	5976	5249
15°	5815	4789	5783	4789
20°	5578	4366	5545	4366
25°	5314	3975	5280	3975
30°	4990	3599	4946	3599
35°	4573	3220	4537	3220
40°	4195	2871	4145	2871
45°	3825	2501	3785	2501
50°	3480	2067	3440	2067
55°	3174	1532	3143	1532
60°	2838	1121	2821	1121
65°	2434	820	2434	820
70°	2027	615	2046	615
75°	1595	440	1668	440
80°	2077	279	1514	279
85°	4177	119	1709	119



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	45.7	1.1
10°-20°	128.5	3.2
20°-30°	188.0	4.7
30°-40°	212.5	5.3
40°-50°	197.6	4.9
50°-60°	155.5	3.9
60°-70°	98.8	2.4
70°-80°	50.1	1.2
80°-90°	43.4	1.1
90°-100°	90.8	2.2
100°-110°	188.1	4.7
110°-120°	325.5	8.1
120°-130°	442.3	11.0
130°-140°	504.6	12.5
140°-150°	503.4	12.5
150°-160°	438.4	10.9
160°-170°	308.5	7.6
170°-180°	114.9	2.8
0°-30°	362.3	9.0
0°-40°	574.7	14.2
0°-60°	927.8	23.0
0°-90°	1120.1	27.7
90°-120°	604.4	15.0
90°-150°	2054.7	50.9
90°-180°	2917.0	72.3
0°-180°	4036.6	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	486	486	486	486	486	
5°	480	482	480	482	480	46
15°	459	454	457	454	459	129
25°	409	409	406	409	409	188
35°	332	347	330	347	332	208
45°	253	274	250	274	253	196
55°	183	165	181	165	183	164
65°	115	84	115	84	115	115
75°	57	42	59	42	57	67
85°	95	10	39	10	95	71
90°	152	1	22	1	152	84
95°	219	35	14	35	219	193
105°	372	171	7	171	372	391
115°	526	350	120	350	526	522
125°	658	548	299	548	658	588
135°	765	749	481	749	765	591
145°	840	937	647	937	840	530
155°	939	1083	814	1083	939	433
165°	1027	1178	993	1178	1027	291
175°	1215	1227	1189	1227	1215	113
180°	1226	1226	1226	1226	1226	



TEST NUMBER: P392533

CATALOG NUMBER: MWL-2-35-13-UNV-L935-EDD

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	485.8	485.8	485.8	485.8	485.8	485.8	485.8	485.8	485.8	485.8	485.8
2.5°	483.2	484.9	486.7	485.8	485.0	485.0	486.7	484.9	484.1	484.9	486.7
5°	479.9	482.4	484.2	482.5	481.7	482.5	483.3	482.4	479.9	482.4	483.3
7.5°	477.4	479.2	479.2	478.3	477.5	477.5	478.2	478.2	477.4	478.2	478.2
10°	472.4	473.3	473.3	472.5	470.8	471.6	472.4	471.6	472.4	471.6	472.4
12.5°	467.5	466.7	464.9	464.1	462.4	464.1	464.9	464.9	465.7	464.9	464.9
15°	459.1	457.5	456.6	456.6	454.1	455.7	455.7	455.7	456.6	455.7	455.7
17.5°	449.1	447.5	446.6	445.7	444.9	445.7	445.7	446.6	446.6	446.6	445.7
20°	436.6	436.6	435.7	434.0	433.2	433.2	434.9	434.9	434.0	434.9	434.9
22.5°	423.3	423.3	423.2	423.2	421.5	422.4	422.4	421.5	421.5	421.5	422.4
25°	409.1	409.1	410.0	409.9	409.0	409.0	408.2	406.5	406.5	406.5	408.2
27.5°	392.4	393.2	395.7	396.5	394.8	395.6	394.0	390.6	389.8	390.6	394.0
30°	374.8	376.6	380.7	382.4	380.6	380.6	378.1	374.0	371.5	374.0	378.1
32.5°	354.0	356.6	362.3	366.6	365.6	364.7	359.7	353.1	350.6	353.1	359.7
35°	332.3	334.8	342.3	349.0	347.2	346.5	339.7	332.2	329.7	332.2	339.7
37.5°	311.5	312.3	320.7	330.7	331.4	328.1	318.1	309.7	308.9	309.7	318.1
40°	292.3	290.6	296.4	310.6	313.1	308.9	293.0	287.1	288.8	287.1	293.0
42.5°	272.2	269.7	273.0	288.8	294.7	287.2	270.4	266.2	268.7	266.2	270.4
45°	253.0	250.5	249.6	265.5	273.8	263.8	246.2	247.9	250.4	247.9	246.2
47.5°	235.5	231.3	228.8	240.5	253.8	239.6	225.4	228.7	232.9	228.7	225.4
50°	216.2	214.6	209.6	216.2	225.5	214.5	206.1	211.2	213.7	211.2	206.1
52.5°	200.5	197.9	190.4	193.7	197.1	192.0	187.9	194.5	197.9	194.5	187.9
55°	182.9	181.2	172.1	171.2	165.2	169.5	169.5	178.6	181.1	178.6	169.5
57.5°	166.2	164.6	154.5	147.8	138.6	146.1	152.0	162.0	164.5	162.0	152.0
60°	149.5	147.8	135.3	125.2	118.6	124.4	133.6	146.1	148.6	146.1	133.6
62.5°	133.7	130.3	116.1	103.5	99.4	102.7	114.4	128.6	132.7	128.6	114.4
65°	115.2	111.1	97.7	86.9	84.4	86.0	96.9	110.2	115.2	110.2	96.9
67.5°	99.4	93.5	82.7	71.9	72.7	71.9	81.9	92.7	99.4	92.7	81.9
70°	84.4	76.9	66.9	59.3	61.0	59.3	66.9	77.7	85.2	77.7	66.9
72.5°	70.2	61.8	54.3	48.5	50.0	47.5	54.3	62.6	71.9	62.6	54.3
75°	56.8	50.1	41.7	38.4	41.7	38.4	42.6	51.0	59.4	51.0	42.6
77.5°	54.5	44.4	32.5	30.0	33.4	30.0	33.5	41.8	51.1	41.8	33.5
80°	60.9	49.9	27.7	23.4	25.0	23.4	26.0	36.1	44.4	36.1	26.0
82.5°	74.3	63.9	33.9	16.7	17.5	16.7	23.6	32.7	41.3	32.7	23.6
85°	95.3	86.6	50.5	15.2	10.0	13.5	25.3	33.7	39.0	33.7	25.3
87.5°	122.3	115.3	73.1	25.6	2.5	13.5	23.7	32.1	33.0	32.1	23.7
90°	151.9	145.0	101.8	41.3	0.9	8.5	16.0	22.7	21.9	22.7	16.0
92.5°	187.5	178.8	131.3	64.8	13.9	5.1	12.6	18.6	17.7	18.6	12.6
95°	218.7	214.4	165.2	90.1	34.6	3.5	9.2	13.5	13.5	13.5	9.2
97.5°	254.4	249.2	200.0	121.3	61.5	10.4	8.5	11.0	11.8	11.0	8.5
100°	284.8	283.2	236.5	158.5	94.5	28.6	6.9	11.1	11.9	11.1	6.9
102.5°	331.7	320.6	271.2	194.1	130.0	53.8	13.0	8.6	9.4	8.6	13.0
105°	371.7	359.5	313.7	231.3	170.7	87.5	33.8	11.3	6.9	11.3	33.8
107.5°	408.9	400.2	352.6	269.5	214.0	126.5	64.1	32.9	20.8	32.9	64.1
110°	452.3	441.9	389.9	308.5	259.0	169.0	97.9	60.7	46.7	60.7	97.9



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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°	493.8	486.1	424.5	348.3	306.7	214.0	139.5	95.3	82.2	95.3	139.5
115°	525.9	521.5	464.4	385.5	350.0	265.1	185.4	136.0	120.4	136.0	185.4
117.5°	559.7	558.8	493.8	423.7	402.0	311.1	227.9	176.7	160.2	176.7	227.9
120°	602.1	595.2	534.6	461.8	451.4	359.5	274.7	223.5	207.1	223.5	274.7
122.5°	631.6	627.2	569.3	498.2	498.2	408.9	319.7	268.6	251.2	268.6	319.7
125°	658.5	656.8	595.2	534.6	548.5	454.9	369.9	318.0	298.9	318.0	369.9
127.5°	682.7	685.3	629.1	574.4	599.5	501.7	419.4	362.2	342.2	362.2	419.4
130°	703.5	712.2	661.1	610.8	648.1	552.8	463.5	406.3	393.3	406.3	463.5
132.5°	744.3	739.1	694.0	648.1	700.1	599.5	510.3	450.5	435.8	450.5	510.3
135°	765.1	766.8	722.7	680.1	748.6	646.4	554.5	495.6	480.8	495.6	554.5
137.5°	790.2	785.0	745.2	719.1	793.6	691.4	597.8	543.3	519.9	543.3	597.8
140°	808.5	807.5	774.6	753.8	842.2	735.6	642.0	586.5	564.9	586.5	642.0
142.5°	827.4	832.7	804.1	792.0	890.7	782.4	689.7	629.1	608.3	629.1	689.7
145°	840.5	851.7	833.6	839.6	936.7	834.3	731.3	669.8	647.2	669.8	731.3
147.5°	862.1	876.8	855.2	873.4	976.5	880.3	772.9	712.2	692.3	712.2	772.9
150°	891.6	898.5	885.5	920.2	1017.3	931.5	815.4	753.0	732.9	753.0	815.4
152.5°	914.9	923.6	909.0	971.3	1049.3	978.2	862.1	792.8	769.4	792.8	862.1
155°	939.3	942.7	932.3	1020.6	1083.1	1024.2	899.3	837.0	814.5	837.0	899.3
157.5°	961.8	968.7	956.6	1058.0	1112.5	1064.0	941.9	881.2	861.3	881.2	941.9
160°	986.0	986.0	992.9	1101.2	1136.8	1098.6	986.9	929.7	901.9	929.7	986.9
162.5°	988.6	1005.1	1042.4	1131.5	1160.2	1128.9	1035.5	964.4	940.0	964.4	1035.5
165°	1026.8	1041.4	1097.8	1158.4	1178.4	1155.9	1095.2	1021.6	992.9	1021.6	1095.2
167.5°	1066.6	1097.8	1142.8	1188.8	1195.7	1181.0	1141.2	1090.0	1064.0	1090.0	1141.2
170°	1131.5	1158.4	1181.0	1200.0	1209.6	1200.9	1169.7	1144.6	1128.2	1144.6	1169.7
172.5°	1182.7	1200.0	1208.8	1220.8	1214.7	1211.3	1195.7	1183.6	1174.9	1183.6	1195.7
175°	1214.7	1218.2	1226.0	1221.8	1227.0	1217.4	1218.2	1224.4	1188.8	1224.4	1218.2
177.5°	1226.0	1232.1	1227.7	1220.0	1220.8	1219.1	1222.6	1226.0	1220.8	1226.0	1222.6
180°	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0



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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	485.8	485.8	485.8	485.8	485.8	485.8
2.5°	485.0	485.0	485.8	486.7	484.9	483.2
5°	482.5	481.7	482.5	484.2	482.4	479.9
7.5°	477.5	477.5	478.3	479.2	479.2	477.4
10°	471.6	470.8	472.5	473.3	473.3	472.4
12.5°	464.1	462.4	464.1	464.9	466.7	467.5
15°	455.7	454.1	456.6	456.6	457.5	459.1
17.5°	445.7	444.9	445.7	446.6	447.5	449.1
20°	433.2	433.2	434.0	435.7	436.6	436.6
22.5°	422.4	421.5	423.2	423.2	423.3	423.3
25°	409.0	409.0	409.9	410.0	409.1	409.1
27.5°	395.6	394.8	396.5	395.7	393.2	392.4
30°	380.6	380.6	382.4	380.7	376.6	374.8
32.5°	364.7	365.6	366.6	362.3	356.6	354.0
35°	346.5	347.2	349.0	342.3	334.8	332.3
37.5°	328.1	331.4	330.7	320.7	312.3	311.5
40°	308.9	313.1	310.6	296.4	290.6	292.3
42.5°	287.2	294.7	288.8	273.0	269.7	272.2
45°	263.8	273.8	265.5	249.6	250.5	253.0
47.5°	239.6	253.8	240.5	228.8	231.3	235.5
50°	214.5	225.5	216.2	209.6	214.6	216.2
52.5°	192.0	197.1	193.7	190.4	197.9	200.5
55°	169.5	165.2	171.2	172.1	181.2	182.9
57.5°	146.1	138.6	147.8	154.5	164.6	166.2
60°	124.4	118.6	125.2	135.3	147.8	149.5
62.5°	102.7	99.4	103.5	116.1	130.3	133.7
65°	86.0	84.4	86.9	97.7	111.1	115.2
67.5°	71.9	72.7	71.9	82.7	93.5	99.4
70°	59.3	61.0	59.3	66.9	76.9	84.4
72.5°	47.5	50.0	48.5	54.3	61.8	70.2
75°	38.4	41.7	38.4	41.7	50.1	56.8
77.5°	30.0	33.4	30.0	32.5	44.4	54.5
80°	23.4	25.0	23.4	27.7	49.9	60.9
82.5°	16.7	17.5	16.7	33.9	63.9	74.3
85°	13.5	10.0	15.2	50.5	86.6	95.3
87.5°	13.5	2.5	25.6	73.1	115.3	122.3
90°	8.5	0.9	41.3	101.8	145.0	151.9
92.5°	5.1	13.9	64.8	131.3	178.8	187.5
95°	3.5	34.6	90.1	165.2	214.4	218.7
97.5°	10.4	61.5	121.3	200.0	249.2	254.4
100°	28.6	94.5	158.5	236.5	283.2	284.8
102.5°	53.8	130.0	194.1	271.2	320.6	331.7
105°	87.5	170.7	231.3	313.7	359.5	371.7
107.5°	126.5	214.0	269.5	352.6	400.2	408.9
110°	169.0	259.0	308.5	389.9	441.9	452.3





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	214.0	306.7	348.3	424.5	486.1	493.8
115°	265.1	350.0	385.5	464.4	521.5	525.9
117.5°	311.1	402.0	423.7	493.8	558.8	559.7
120°	359.5	451.4	461.8	534.6	595.2	602.1
122.5°	408.9	498.2	498.2	569.3	627.2	631.6
125°	454.9	548.5	534.6	595.2	656.8	658.5
127.5°	501.7	599.5	574.4	629.1	685.3	682.7
130°	552.8	648.1	610.8	661.1	712.2	703.5
132.5°	599.5	700.1	648.1	694.0	739.1	744.3
135°	646.4	748.6	680.1	722.7	766.8	765.1
137.5°	691.4	793.6	719.1	745.2	785.0	790.2
140°	735.6	842.2	753.8	774.6	807.5	808.5
142.5°	782.4	890.7	792.0	804.1	832.7	827.4
145°	834.3	936.7	839.6	833.6	851.7	840.5
147.5°	880.3	976.5	873.4	855.2	876.8	862.1
150°	931.5	1017.3	920.2	885.5	898.5	891.6
152.5°	978.2	1049.3	971.3	909.0	923.6	914.9
155°	1024.2	1083.1	1020.6	932.3	942.7	939.3
157.5°	1064.0	1112.5	1058.0	956.6	968.7	961.8
160°	1098.6	1136.8	1101.2	992.9	986.0	986.0
162.5°	1128.9	1160.2	1131.5	1042.4	1005.1	988.6
165°	1155.9	1178.4	1158.4	1097.8	1041.4	1026.8
167.5°	1181.0	1195.7	1188.8	1142.8	1097.8	1066.6
170°	1200.9	1209.6	1200.0	1181.0	1158.4	1131.5
172.5°	1211.3	1214.7	1220.8	1208.8	1200.0	1182.7
175°	1217.4	1227.0	1221.8	1226.0	1218.2	1214.7
177.5°	1219.1	1220.8	1220.0	1227.7	1232.1	1226.0
180°	1226.0	1226.0	1226.0	1226.0	1226.0	1226.0

(END OF REPORT)