

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: P392532

Luminaire Tested: **MWL-2-35-13-UNV-L930-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392532
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-L930-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3978.1 lumens
Efficiency: N/A
Efficacy: 72.8 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

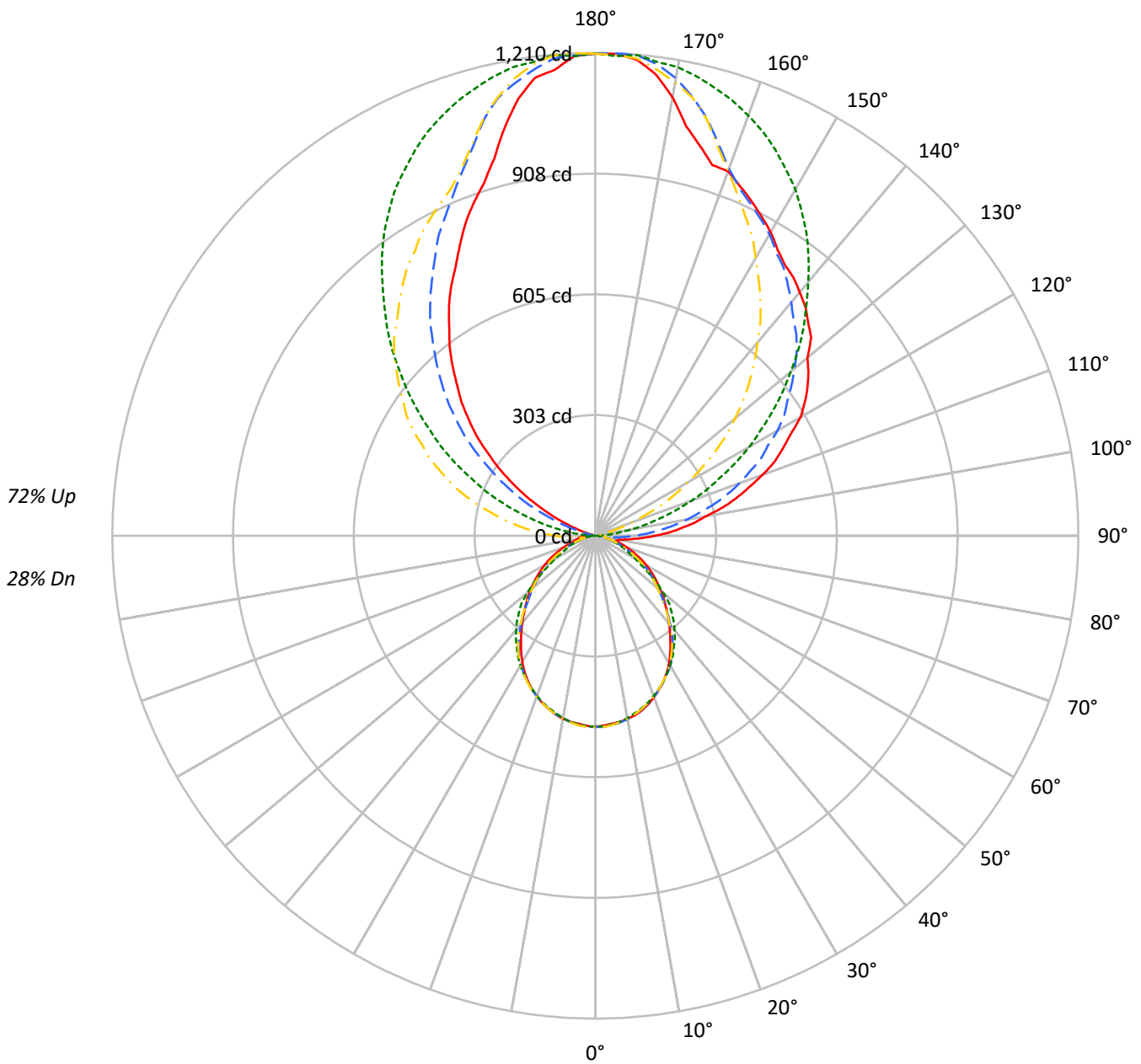
Input Watts (W): 54.641
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot



— 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	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°	6185	6185	6185	6185
5°	6023	5660	6023	5660
10°	5889	5174	5889	5174
15°	5731	4720	5698	4720
20°	5498	4303	5465	4303
25°	5238	3918	5204	3918
30°	4919	3547	4874	3547
35°	4507	3175	4472	3175
40°	4134	2828	4085	2828
45°	3769	2465	3729	2465
50°	3432	2037	3390	2037
55°	3127	1511	3098	1511
60°	2796	1104	2779	1104
65°	2400	808	2400	808
70°	1996	606	2015	606
75°	1572	433	1645	433
80°	2049	275	1493	275
85°	4116	118	1683	118



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.1	1.1
10°-20°	126.6	3.2
20°-30°	185.3	4.7
30°-40°	209.4	5.3
40°-50°	194.8	4.9
50°-60°	153.2	3.9
60°-70°	97.4	2.4
70°-80°	49.3	1.2
80°-90°	42.8	1.1
90°-100°	89.4	2.2
100°-110°	185.4	4.7
110°-120°	320.8	8.1
120°-130°	435.9	11.0
130°-140°	497.3	12.5
140°-150°	496.1	12.5
150°-160°	432.1	10.9
160°-170°	304.0	7.6
170°-180°	113.2	2.8
0°-30°	357.0	9.0
0°-40°	566.4	14.2
0°-60°	914.4	23.0
0°-90°	1103.9	27.7
90°-120°	595.7	15.0
90°-150°	2024.9	50.9
90°-180°	2874.0	72.2
0°-180°	3978.1	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	479	479	479	479	479	
5°	473	475	473	475	473	45
15°	452	448	450	448	452	127
25°	403	403	401	403	403	185
35°	328	342	325	342	328	205
45°	249	270	247	270	249	193
55°	180	163	178	163	180	161
65°	114	83	114	83	114	113
75°	56	41	59	41	56	66
85°	94	10	38	10	94	70
90°	150	1	22	1	150	83
95°	216	34	13	34	216	190
105°	366	168	7	168	366	385
115°	518	345	119	345	518	514
125°	649	540	294	540	649	580
135°	754	738	474	738	754	582
145°	828	923	638	923	828	522
155°	926	1067	803	1067	926	427
165°	1012	1161	979	1161	1012	287
175°	1197	1209	1172	1209	1197	112
180°	1208	1208	1208	1208	1208	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8	478.8
2.5°	476.3	477.9	479.6	478.8	477.9	477.9	479.6	477.9	477.1	477.9	479.6
5°	473.0	475.5	477.1	475.5	474.7	475.5	476.4	475.5	473.0	475.5	476.4
7.5°	470.5	472.2	472.2	471.4	470.5	470.5	471.3	471.3	470.5	471.3	471.3
10°	465.5	466.5	466.5	465.6	464.0	464.7	465.5	464.7	465.5	464.7	465.5
12.5°	460.7	459.9	458.1	457.3	455.7	457.3	458.1	458.1	459.0	458.1	458.1
15°	452.5	450.8	449.9	449.9	447.5	449.1	449.1	449.1	449.9	449.1	449.1
17.5°	442.6	441.0	440.1	439.3	438.4	439.3	439.3	440.1	440.1	440.1	439.3
20°	430.3	430.3	429.4	427.7	427.0	427.0	428.5	428.5	427.7	428.5	428.5
22.5°	417.1	417.1	417.1	417.1	415.4	416.2	416.2	415.4	415.4	415.4	416.2
25°	403.2	403.2	404.0	403.9	403.1	403.1	402.2	400.6	400.6	400.6	402.2
27.5°	386.7	387.5	390.0	390.8	389.1	389.9	388.3	385.0	384.2	385.0	388.3
30°	369.5	371.0	375.2	376.9	375.1	375.1	372.6	368.6	366.1	368.6	372.6
32.5°	348.9	351.3	357.1	361.2	360.3	359.5	354.6	348.0	345.5	348.0	354.6
35°	327.5	330.0	337.4	343.9	342.3	341.4	334.9	327.5	325.0	327.5	334.9
37.5°	306.9	307.7	316.0	325.9	326.6	323.3	313.5	305.2	304.4	305.2	313.5
40°	288.0	286.4	292.1	306.1	308.5	304.4	288.7	282.9	284.6	282.9	288.7
42.5°	268.3	265.8	269.1	284.7	290.4	283.0	266.5	262.4	264.9	262.4	266.5
45°	249.3	246.8	246.0	261.7	269.9	260.0	242.7	244.3	246.7	244.3	242.7
47.5°	232.0	228.0	225.5	236.9	250.2	236.2	222.1	225.4	229.5	225.4	222.1
50°	213.2	211.5	206.6	213.2	222.2	211.4	203.2	208.2	210.6	208.2	203.2
52.5°	197.5	195.0	187.6	190.9	194.2	189.2	185.1	191.7	194.9	191.7	185.1
55°	180.2	178.6	169.6	168.7	162.9	167.0	167.0	176.0	178.5	176.0	167.0
57.5°	163.8	162.2	152.2	145.7	136.6	144.0	149.8	159.6	162.1	159.6	149.8
60°	147.3	145.7	133.4	123.4	116.8	122.6	131.6	144.0	146.4	144.0	131.6
62.5°	131.7	128.5	114.5	102.0	97.9	101.3	112.7	126.7	130.8	126.7	112.7
65°	113.6	109.4	96.3	85.6	83.1	84.8	95.4	108.7	113.6	108.7	95.4
67.5°	97.9	92.2	81.4	70.8	71.6	70.8	80.7	91.4	97.9	91.4	80.7
70°	83.1	75.7	65.9	58.5	60.1	58.5	65.9	76.5	83.9	76.5	65.9
72.5°	69.1	60.9	53.5	47.8	49.3	46.8	53.5	61.7	70.9	61.7	53.5
75°	56.0	49.4	41.1	37.9	41.1	37.9	42.0	50.3	58.6	50.3	42.0
77.5°	53.8	43.8	32.1	29.6	32.9	29.6	32.9	41.2	50.4	41.2	32.9
80°	60.1	49.1	27.3	23.0	24.7	23.0	25.5	35.5	43.8	35.5	25.5
82.5°	73.2	63.0	33.4	16.5	17.3	16.5	23.2	32.2	40.7	32.2	23.2
85°	93.9	85.3	49.7	15.0	9.9	13.2	24.9	33.2	38.4	33.2	24.9
87.5°	120.5	113.7	72.0	25.3	2.5	13.3	23.3	31.7	32.6	31.7	23.3
90°	149.7	142.8	100.3	40.7	0.8	8.3	15.8	22.4	21.7	22.4	15.8
92.5°	184.7	176.2	129.4	63.9	13.6	5.0	12.4	18.2	17.4	18.2	12.4
95°	215.6	211.3	162.8	88.8	34.2	3.4	9.2	13.2	13.2	13.2	9.2
97.5°	250.7	245.6	197.1	119.6	60.6	10.3	8.4	10.8	11.7	10.8	8.4
100°	280.7	279.1	233.1	156.2	93.1	28.2	6.9	10.9	11.8	10.9	6.9
102.5°	326.9	315.9	267.3	191.2	128.1	52.9	12.9	8.5	9.3	8.5	12.9
105°	366.3	354.3	309.1	228.0	168.3	86.3	33.3	11.1	6.9	11.1	33.3
107.5°	403.0	394.5	347.4	265.6	210.9	124.7	63.1	32.4	20.5	32.4	63.1
110°	445.7	435.5	384.3	303.9	255.3	166.5	96.4	59.8	46.1	59.8	96.4



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CATALOG NUMBER: MWL-2-35-13-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	486.7	479.1	418.3	343.2	302.3	210.9	137.4	93.9	81.1	93.9	137.4
115°	518.3	514.0	457.7	379.9	345.0	261.2	182.7	134.0	118.7	134.0	182.7
117.5°	551.5	550.8	486.7	417.5	396.1	306.5	224.5	174.2	158.0	174.2	224.5
120°	593.5	586.6	526.8	455.1	444.8	354.3	270.7	220.3	204.1	220.3	270.7
122.5°	622.4	618.2	561.1	491.0	491.0	403.0	315.1	264.7	247.6	264.7	315.1
125°	648.9	647.2	586.6	526.8	540.5	448.3	364.6	313.4	294.5	313.4	364.6
127.5°	672.9	675.4	619.9	566.2	590.9	494.4	413.3	357.0	337.3	357.0	413.3
130°	693.3	701.8	651.5	602.0	638.7	544.8	456.8	400.5	387.6	400.5	456.8
132.5°	733.5	728.3	684.0	638.7	690.0	590.9	502.9	444.0	429.5	444.0	502.9
135°	754.0	755.6	712.1	670.3	737.8	637.0	546.4	488.4	473.9	488.4	546.4
137.5°	778.8	773.6	734.3	708.7	782.1	681.4	589.1	535.3	512.4	535.3	589.1
140°	796.7	795.8	763.4	742.9	830.0	725.0	632.7	578.0	556.7	578.0	632.7
142.5°	815.4	820.6	792.4	780.5	877.8	771.1	679.7	619.9	599.4	619.9	679.7
145°	828.3	839.4	821.4	827.4	923.0	822.3	720.7	660.0	637.8	660.0	720.7
147.5°	849.7	864.1	842.8	860.8	962.4	867.6	761.6	701.8	682.2	701.8	761.6
150°	878.7	885.5	872.7	906.8	1002.5	918.0	803.5	742.0	722.4	742.0	803.5
152.5°	901.7	910.3	895.7	957.2	1034.1	964.1	849.7	781.3	758.3	781.3	849.7
155°	925.6	929.1	918.8	1005.9	1067.3	1009.3	886.3	824.9	802.7	824.9	886.3
157.5°	947.9	954.6	942.8	1042.6	1096.4	1048.6	928.1	868.3	848.7	868.3	928.1
160°	971.7	971.7	978.6	1085.3	1120.3	1082.8	972.6	916.2	888.9	916.2	972.6
162.5°	974.3	990.5	1027.3	1115.2	1143.3	1112.6	1020.4	950.3	926.5	950.3	1020.4
165°	1011.9	1026.3	1081.9	1141.7	1161.3	1139.1	1079.3	1006.8	978.6	1006.8	1079.3
167.5°	1051.1	1081.9	1126.2	1171.6	1178.4	1163.8	1124.6	1074.2	1048.6	1074.2	1124.6
170°	1115.2	1141.7	1163.8	1182.7	1192.0	1183.5	1152.8	1128.0	1111.8	1128.0	1152.8
172.5°	1165.5	1182.7	1191.2	1203.1	1197.1	1193.8	1178.4	1166.5	1157.9	1166.5	1178.4
175°	1197.1	1200.6	1208.2	1204.0	1209.1	1199.8	1200.6	1206.5	1171.6	1206.5	1200.6
177.5°	1208.2	1214.2	1210.0	1202.3	1203.1	1201.4	1204.9	1208.2	1203.1	1208.2	1204.9
180°	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2



TEST NUMBER: P392532

CATALOG NUMBER: MWL-2-35-13-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	478.8	478.8	478.8	478.8	478.8	478.8
2.5°	477.9	477.9	478.8	479.6	477.9	476.3
5°	475.5	474.7	475.5	477.1	475.5	473.0
7.5°	470.5	470.5	471.4	472.2	472.2	470.5
10°	464.7	464.0	465.6	466.5	466.5	465.5
12.5°	457.3	455.7	457.3	458.1	459.9	460.7
15°	449.1	447.5	449.9	449.9	450.8	452.5
17.5°	439.3	438.4	439.3	440.1	441.0	442.6
20°	427.0	427.0	427.7	429.4	430.3	430.3
22.5°	416.2	415.4	417.1	417.1	417.1	417.1
25°	403.1	403.1	403.9	404.0	403.2	403.2
27.5°	389.9	389.1	390.8	390.0	387.5	386.7
30°	375.1	375.1	376.9	375.2	371.0	369.5
32.5°	359.5	360.3	361.2	357.1	351.3	348.9
35°	341.4	342.3	343.9	337.4	330.0	327.5
37.5°	323.3	326.6	325.9	316.0	307.7	306.9
40°	304.4	308.5	306.1	292.1	286.4	288.0
42.5°	283.0	290.4	284.7	269.1	265.8	268.3
45°	260.0	269.9	261.7	246.0	246.8	249.3
47.5°	236.2	250.2	236.9	225.5	228.0	232.0
50°	211.4	222.2	213.2	206.6	211.5	213.2
52.5°	189.2	194.2	190.9	187.6	195.0	197.5
55°	167.0	162.9	168.7	169.6	178.6	180.2
57.5°	144.0	136.6	145.7	152.2	162.2	163.8
60°	122.6	116.8	123.4	133.4	145.7	147.3
62.5°	101.3	97.9	102.0	114.5	128.5	131.7
65°	84.8	83.1	85.6	96.3	109.4	113.6
67.5°	70.8	71.6	70.8	81.4	92.2	97.9
70°	58.5	60.1	58.5	65.9	75.7	83.1
72.5°	46.8	49.3	47.8	53.5	60.9	69.1
75°	37.9	41.1	37.9	41.1	49.4	56.0
77.5°	29.6	32.9	29.6	32.1	43.8	53.8
80°	23.0	24.7	23.0	27.3	49.1	60.1
82.5°	16.5	17.3	16.5	33.4	63.0	73.2
85°	13.2	9.9	15.0	49.7	85.3	93.9
87.5°	13.3	2.5	25.3	72.0	113.7	120.5
90°	8.3	0.8	40.7	100.3	142.8	149.7
92.5°	5.0	13.6	63.9	129.4	176.2	184.7
95°	3.4	34.2	88.8	162.8	211.3	215.6
97.5°	10.3	60.6	119.6	197.1	245.6	250.7
100°	28.2	93.1	156.2	233.1	279.1	280.7
102.5°	52.9	128.1	191.2	267.3	315.9	326.9
105°	86.3	168.3	228.0	309.1	354.3	366.3
107.5°	124.7	210.9	265.6	347.4	394.5	403.0
110°	166.5	255.3	303.9	384.3	435.5	445.7



TEST NUMBER: P392532

CATALOG NUMBER: MWL-2-35-13-UNV-L930-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	210.9	302.3	343.2	418.3	479.1	486.7
115°	261.2	345.0	379.9	457.7	514.0	518.3
117.5°	306.5	396.1	417.5	486.7	550.8	551.5
120°	354.3	444.8	455.1	526.8	586.6	593.5
122.5°	403.0	491.0	491.0	561.1	618.2	622.4
125°	448.3	540.5	526.8	586.6	647.2	648.9
127.5°	494.4	590.9	566.2	619.9	675.4	672.9
130°	544.8	638.7	602.0	651.5	701.8	693.3
132.5°	590.9	690.0	638.7	684.0	728.3	733.5
135°	637.0	737.8	670.3	712.1	755.6	754.0
137.5°	681.4	782.1	708.7	734.3	773.6	778.8
140°	725.0	830.0	742.9	763.4	795.8	796.7
142.5°	771.1	877.8	780.5	792.4	820.6	815.4
145°	822.3	923.0	827.4	821.4	839.4	828.3
147.5°	867.6	962.4	860.8	842.8	864.1	849.7
150°	918.0	1002.5	906.8	872.7	885.5	878.7
152.5°	964.1	1034.1	957.2	895.7	910.3	901.7
155°	1009.3	1067.3	1005.9	918.8	929.1	925.6
157.5°	1048.6	1096.4	1042.6	942.8	954.6	947.9
160°	1082.8	1120.3	1085.3	978.6	971.7	971.7
162.5°	1112.6	1143.3	1115.2	1027.3	990.5	974.3
165°	1139.1	1161.3	1141.7	1081.9	1026.3	1011.9
167.5°	1163.8	1178.4	1171.6	1126.2	1081.9	1051.1
170°	1183.5	1192.0	1182.7	1163.8	1141.7	1115.2
172.5°	1193.8	1197.1	1203.1	1191.2	1182.7	1165.5
175°	1199.8	1209.1	1204.0	1208.2	1200.6	1197.1
177.5°	1201.4	1203.1	1202.3	1210.0	1214.2	1208.2
180°	1208.2	1208.2	1208.2	1208.2	1208.2	1208.2

(END OF REPORT)