

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: P392522

Luminaire Tested: **MWL-2-28-17-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392522
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-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4204.8 lumens
Efficiency: N/A
Efficacy: 84.3 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

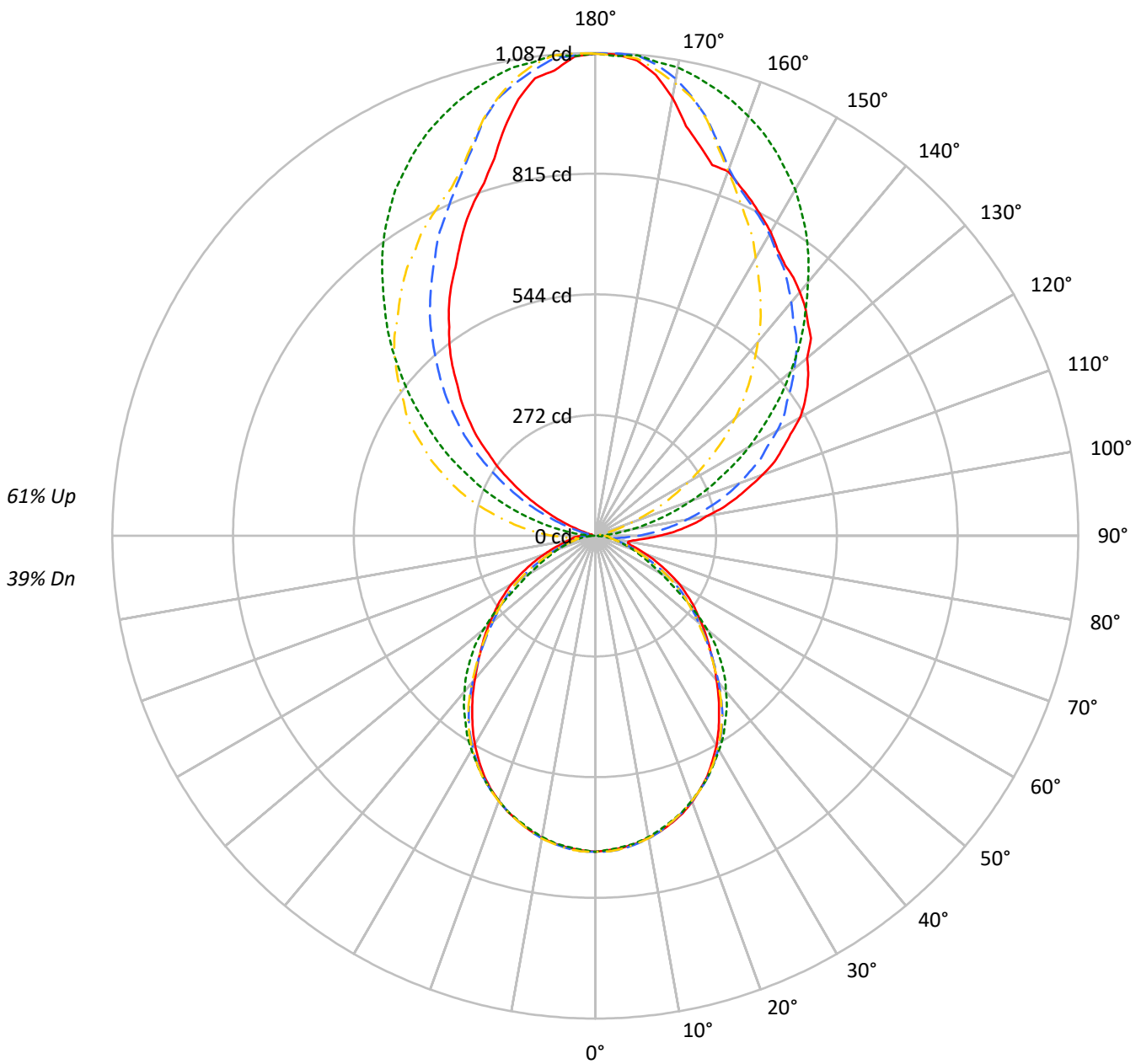
Input Watts (W): 49.894
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P392522

CATALOG NUMBER: MWL-2-28-17-UNV-L940-EDD

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	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°	9190	9190	9190	9190
5°	8972	8383	8972	8383
10°	8737	7679	8737	7679
15°	8466	7007	8435	7007
20°	8144	6394	8113	6394
25°	7749	5822	7719	5822
30°	7263	5267	7223	5267
35°	6681	4727	6649	4727
40°	6093	4195	6048	4195
45°	5538	3646	5503	3646
50°	5074	3019	5039	3019
55°	4636	2235	4610	2235
60°	4157	1624	4142	1624
65°	3532	1201	3532	1201
70°	2904	897	2921	897
75°	2344	633	2409	633
80°	2568	415	2073	415
85°	4352	182	2170	182



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.9	1.6
10°-20°	187.8	4.5
20°-30°	274.8	6.5
30°-40°	310.3	7.4
40°-50°	288.1	6.9
50°-60°	226.5	5.4
60°-70°	143.3	3.4
70°-80°	72.0	1.7
80°-90°	49.9	1.2
90°-100°	84.3	2.0
100°-110°	166.9	4.0
110°-120°	288.0	6.9
120°-130°	391.3	9.3
130°-140°	446.4	10.6
140°-150°	445.7	10.6
150°-160°	388.1	9.2
160°-170°	272.9	6.5
170°-180°	101.7	2.4
0°-30°	529.5	12.6
0°-40°	839.8	20.0
0°-60°	1354.4	32.2
0°-90°	1619.6	38.5
90°-120°	539.3	12.8
90°-150°	1822.6	43.3
90°-180°	2585.0	61.5
0°-180°	4204.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	712	712	712	712	712	
5°	705	703	705	703	705	67
15°	668	664	666	664	668	188
25°	596	599	594	599	596	274
35°	486	510	483	510	486	304
45°	366	399	364	399	366	284
55°	267	241	266	241	267	238
65°	167	124	167	124	167	166
75°	84	60	86	60	84	95
85°	99	15	50	15	99	76
90°	144	1	29	1	144	80
95°	200	31	19	31	200	175
105°	329	152	6	152	329	347
115°	465	310	107	310	465	462
125°	582	485	264	485	582	520
135°	677	662	425	662	677	522
145°	744	828	573	828	744	469
155°	832	958	721	958	832	384
165°	909	1042	879	1042	909	258
175°	1074	1086	1051	1086	1074	100
180°	1085	1085	1085	1085	1085	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	711.5	711.5	711.5	711.5	711.5	711.5	711.5	711.5	711.5	711.5	711.5
2.5°	708.3	709.7	711.3	709.4	707.6	708.6	711.3	709.7	709.0	709.7	711.3
5°	704.6	706.1	707.7	704.9	703.1	704.9	706.9	706.1	704.6	706.1	706.9
7.5°	699.0	700.5	700.5	699.5	697.6	698.7	699.7	699.7	699.0	699.7	699.7
10°	690.6	692.3	692.3	690.5	688.7	689.7	691.5	690.8	690.6	690.8	691.5
12.5°	681.2	681.4	680.6	678.8	677.1	678.8	680.6	679.9	679.7	679.9	680.6
15°	668.4	667.7	666.9	666.0	664.4	665.3	666.2	666.2	666.0	666.2	666.2
17.5°	654.7	653.2	652.3	652.5	651.6	652.5	651.6	652.3	652.3	652.3	651.6
20°	637.4	637.5	635.9	636.1	634.5	635.4	635.2	635.9	635.0	635.9	635.2
22.5°	617.5	618.4	618.6	617.9	617.2	617.2	617.9	616.8	615.9	616.8	617.9
25°	596.5	597.4	599.4	598.8	599.0	598.0	597.9	595.1	594.2	595.1	597.9
27.5°	571.0	574.6	577.5	578.5	578.0	577.8	576.0	572.4	568.7	572.4	576.0
30°	545.5	548.2	553.7	558.4	557.0	556.9	551.4	545.9	542.5	545.9	551.4
32.5°	516.3	520.0	528.2	534.7	535.9	533.2	525.9	517.0	513.3	517.0	525.9
35°	485.5	487.3	499.2	508.3	509.7	506.0	496.9	485.1	483.2	485.1	496.9
37.5°	455.5	454.5	466.4	482.8	485.8	480.5	464.1	452.3	453.2	452.3	464.1
40°	424.5	422.7	431.8	452.8	457.6	451.4	428.7	419.6	421.4	419.6	428.7
42.5°	395.3	393.5	397.2	421.8	431.1	420.4	395.0	390.4	392.2	390.4	395.0
45°	366.3	363.5	364.4	386.3	399.2	384.8	361.4	361.3	364.0	361.3	361.4
47.5°	340.8	336.2	333.5	349.1	368.3	348.4	330.5	333.9	338.5	333.9	330.5
50°	315.2	310.7	303.4	314.5	329.3	313.0	300.4	307.7	313.0	307.7	300.4
52.5°	289.7	287.0	276.2	281.7	286.4	280.2	274.0	284.0	287.5	284.0	274.0
55°	267.1	263.5	250.7	248.2	241.0	246.6	248.5	261.2	265.6	261.2	248.5
57.5°	242.5	240.7	225.2	214.5	201.8	212.9	222.9	238.4	241.0	238.4	222.9
60°	219.0	214.5	196.3	180.9	171.7	180.1	194.7	212.9	218.2	212.9	194.7
62.5°	191.7	189.0	168.9	149.9	145.5	149.1	167.4	187.4	190.9	187.4	167.4
65°	167.2	161.7	141.7	125.3	123.6	124.5	140.9	161.0	167.2	161.0	140.9
67.5°	144.4	135.3	118.0	103.6	104.5	103.6	117.3	134.6	144.4	134.6	117.3
70°	120.9	110.9	97.2	85.4	89.0	85.4	97.2	111.6	121.6	111.6	97.2
72.5°	101.8	89.9	79.0	69.9	72.7	69.1	79.0	90.7	103.3	90.7	79.0
75°	83.5	71.7	61.8	55.4	60.0	55.4	62.6	72.4	85.8	72.4	62.6
77.5°	75.1	62.0	47.2	44.5	48.1	44.5	48.0	59.7	72.0	59.7	48.0
80°	75.3	62.7	38.6	33.5	37.2	33.5	37.1	50.5	60.8	50.5	37.1
82.5°	83.7	73.2	42.4	23.5	25.3	23.5	33.2	45.6	54.6	45.6	33.2
85°	99.3	89.7	54.7	20.4	15.3	18.9	32.4	43.1	49.5	43.1	32.4
87.5°	119.5	113.6	72.3	28.2	3.6	17.5	28.6	40.0	40.6	40.0	28.6
90°	144.0	139.0	96.2	40.6	0.7	11.6	20.4	31.0	29.1	31.0	20.4
92.5°	173.1	166.6	121.8	58.9	12.3	6.1	16.9	25.0	23.0	25.0	16.9
95°	200.3	196.6	150.2	80.6	30.6	4.0	12.3	18.9	18.7	18.9	12.3
97.5°	229.4	225.6	178.5	107.2	54.4	9.2	9.1	14.9	14.9	14.9	9.1
100°	254.7	253.1	209.3	140.2	83.5	25.3	6.3	12.5	13.4	12.5	6.3
102.5°	294.7	283.8	240.7	171.7	114.9	47.5	12.4	7.9	9.7	7.9	12.4
105°	328.8	318.1	278.2	205.5	151.9	78.3	30.8	10.1	6.3	10.1	30.8
107.5°	361.8	354.1	312.0	239.2	190.1	112.8	56.9	29.2	18.5	29.2	56.9
110°	400.1	390.9	344.9	272.9	230.0	149.5	86.7	53.8	41.5	53.8	86.7



TEST NUMBER: P392522

CATALOG NUMBER: MWL-2-28-17-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	436.9	429.9	375.6	308.1	271.3	189.4	123.5	84.5	72.9	84.5	123.5
115°	465.2	461.4	410.8	341.1	309.7	234.6	164.1	120.4	106.6	120.4	164.1
117.5°	495.1	494.4	436.9	374.8	355.6	275.2	201.6	156.4	141.9	156.4	201.6
120°	532.6	526.5	472.9	408.5	399.3	318.1	243.0	197.8	183.2	197.8	243.0
122.5°	558.7	554.9	503.5	440.7	440.7	361.8	282.9	237.6	222.3	237.6	282.9
125°	582.5	580.9	526.5	472.9	485.2	402.3	327.3	281.3	264.5	281.3	327.3
127.5°	603.9	606.2	556.4	508.1	530.4	443.8	371.0	320.4	302.8	320.4	371.0
130°	622.3	629.9	584.7	540.3	573.3	489.0	410.0	359.4	347.9	359.4	410.0
132.5°	658.3	653.7	613.8	573.3	619.2	530.4	451.5	398.5	385.5	398.5	451.5
135°	676.7	678.2	639.1	601.6	662.1	571.7	490.4	438.4	425.4	438.4	490.4
137.5°	698.9	694.3	659.0	636.0	701.9	611.5	528.8	480.5	459.8	480.5	528.8
140°	715.9	715.1	686.0	666.7	744.8	650.6	568.8	519.8	500.6	519.8	568.8
142.5°	732.7	737.4	712.0	700.5	787.7	692.0	610.9	557.3	538.9	557.3	610.9
145°	744.2	754.2	738.1	743.5	828.4	738.9	647.7	593.3	573.4	593.3	647.7
147.5°	763.4	776.4	757.2	773.3	863.6	779.4	684.5	630.8	613.3	630.8	684.5
150°	789.5	795.6	784.1	814.7	899.6	824.6	722.0	666.8	649.2	666.8	722.0
152.5°	810.2	817.8	804.8	859.9	928.0	866.1	763.4	702.1	681.4	702.1	763.4
155°	831.6	834.7	825.5	903.6	957.8	906.6	796.3	741.2	721.2	741.2	796.3
157.5°	851.5	857.6	846.9	936.5	983.9	941.9	833.8	780.3	762.6	780.3	833.8
160°	872.9	872.9	879.0	974.0	1005.3	971.6	873.7	823.2	798.7	823.2	873.7
162.5°	875.2	889.8	922.8	1000.8	1026.0	998.5	916.7	853.8	832.4	853.8	916.7
165°	908.9	921.9	971.8	1024.5	1042.1	1022.2	969.5	904.4	879.0	904.4	969.5
167.5°	944.2	971.8	1010.7	1051.3	1057.4	1044.4	1009.1	964.9	941.9	964.9	1009.1
170°	1000.8	1025.4	1044.4	1062.2	1070.6	1063.0	1034.5	1013.1	997.7	1013.1	1034.5
172.5°	1045.9	1061.2	1068.9	1080.6	1075.2	1072.2	1057.4	1046.8	1039.0	1046.8	1057.4
175°	1074.3	1077.4	1085.2	1081.4	1085.9	1077.5	1078.3	1082.8	1051.3	1082.8	1078.3
177.5°	1084.3	1089.6	1086.7	1079.8	1080.6	1079.0	1082.1	1084.3	1079.7	1084.3	1082.1
180°	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2



TEST NUMBER: P392522

CATALOG NUMBER: MWL-2-28-17-UNV-L940-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	711.5	711.5	711.5	711.5	711.5	711.5
2.5°	708.6	707.6	709.4	711.3	709.7	708.3
5°	704.9	703.1	704.9	707.7	706.1	704.6
7.5°	698.7	697.6	699.5	700.5	700.5	699.0
10°	689.7	688.7	690.5	692.3	692.3	690.6
12.5°	678.8	677.1	678.8	680.6	681.4	681.2
15°	665.3	664.4	666.0	666.9	667.7	668.4
17.5°	652.5	651.6	652.5	652.3	653.2	654.7
20°	635.4	634.5	636.1	635.9	637.5	637.4
22.5°	617.2	617.2	617.9	618.6	618.4	617.5
25°	598.0	599.0	598.8	599.4	597.4	596.5
27.5°	577.8	578.0	578.5	577.5	574.6	571.0
30°	556.9	557.0	558.4	553.7	548.2	545.5
32.5°	533.2	535.9	534.7	528.2	520.0	516.3
35°	506.0	509.7	508.3	499.2	487.3	485.5
37.5°	480.5	485.8	482.8	466.4	454.5	455.5
40°	451.4	457.6	452.8	431.8	422.7	424.5
42.5°	420.4	431.1	421.8	397.2	393.5	395.3
45°	384.8	399.2	386.3	364.4	363.5	366.3
47.5°	348.4	368.3	349.1	333.5	336.2	340.8
50°	313.0	329.3	314.5	303.4	310.7	315.2
52.5°	280.2	286.4	281.7	276.2	287.0	289.7
55°	246.6	241.0	248.2	250.7	263.5	267.1
57.5°	212.9	201.8	214.5	225.2	240.7	242.5
60°	180.1	171.7	180.9	196.3	214.5	219.0
62.5°	149.1	145.5	149.9	168.9	189.0	191.7
65°	124.5	123.6	125.3	141.7	161.7	167.2
67.5°	103.6	104.5	103.6	118.0	135.3	144.4
70°	85.4	89.0	85.4	97.2	110.9	120.9
72.5°	69.1	72.7	69.9	79.0	89.9	101.8
75°	55.4	60.0	55.4	61.8	71.7	83.5
77.5°	44.5	48.1	44.5	47.2	62.0	75.1
80°	33.5	37.2	33.5	38.6	62.7	75.3
82.5°	23.5	25.3	23.5	42.4	73.2	83.7
85°	18.9	15.3	20.4	54.7	89.7	99.3
87.5°	17.5	3.6	28.2	72.3	113.6	119.5
90°	11.6	0.7	40.6	96.2	139.0	144.0
92.5°	6.1	12.3	58.9	121.8	166.6	173.1
95°	4.0	30.6	80.6	150.2	196.6	200.3
97.5°	9.2	54.4	107.2	178.5	225.6	229.4
100°	25.3	83.5	140.2	209.3	253.1	254.7
102.5°	47.5	114.9	171.7	240.7	283.8	294.7
105°	78.3	151.9	205.5	278.2	318.1	328.8
107.5°	112.8	190.1	239.2	312.0	354.1	361.8
110°	149.5	230.0	272.9	344.9	390.9	400.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	189.4	271.3	308.1	375.6	429.9	436.9
115°	234.6	309.7	341.1	410.8	461.4	465.2
117.5°	275.2	355.6	374.8	436.9	494.4	495.1
120°	318.1	399.3	408.5	472.9	526.5	532.6
122.5°	361.8	440.7	440.7	503.5	554.9	558.7
125°	402.3	485.2	472.9	526.5	580.9	582.5
127.5°	443.8	530.4	508.1	556.4	606.2	603.9
130°	489.0	573.3	540.3	584.7	629.9	622.3
132.5°	530.4	619.2	573.3	613.8	653.7	658.3
135°	571.7	662.1	601.6	639.1	678.2	676.7
137.5°	611.5	701.9	636.0	659.0	694.3	698.9
140°	650.6	744.8	666.7	686.0	715.1	715.9
142.5°	692.0	787.7	700.5	712.0	737.4	732.7
145°	738.9	828.4	743.5	738.1	754.2	744.2
147.5°	779.4	863.6	773.3	757.2	776.4	763.4
150°	824.6	899.6	814.7	784.1	795.6	789.5
152.5°	866.1	928.0	859.9	804.8	817.8	810.2
155°	906.6	957.8	903.6	825.5	834.7	831.6
157.5°	941.9	983.9	936.5	846.9	857.6	851.5
160°	971.6	1005.3	974.0	879.0	872.9	872.9
162.5°	998.5	1026.0	1000.8	922.8	889.8	875.2
165°	1022.2	1042.1	1024.5	971.8	921.9	908.9
167.5°	1044.4	1057.4	1051.3	1010.7	971.8	944.2
170°	1063.0	1070.6	1062.2	1044.4	1025.4	1000.8
172.5°	1072.2	1075.2	1080.6	1068.9	1061.2	1045.9
175°	1077.5	1085.9	1081.4	1085.2	1077.4	1074.3
177.5°	1079.0	1080.6	1079.8	1086.7	1089.6	1084.3
180°	1085.2	1085.2	1085.2	1085.2	1085.2	1085.2

(END OF REPORT)