

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: P382166

Luminaire Tested: **MWL-2-22-17-UNV-L830-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P382166
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-2-22-17-UNV-L830-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

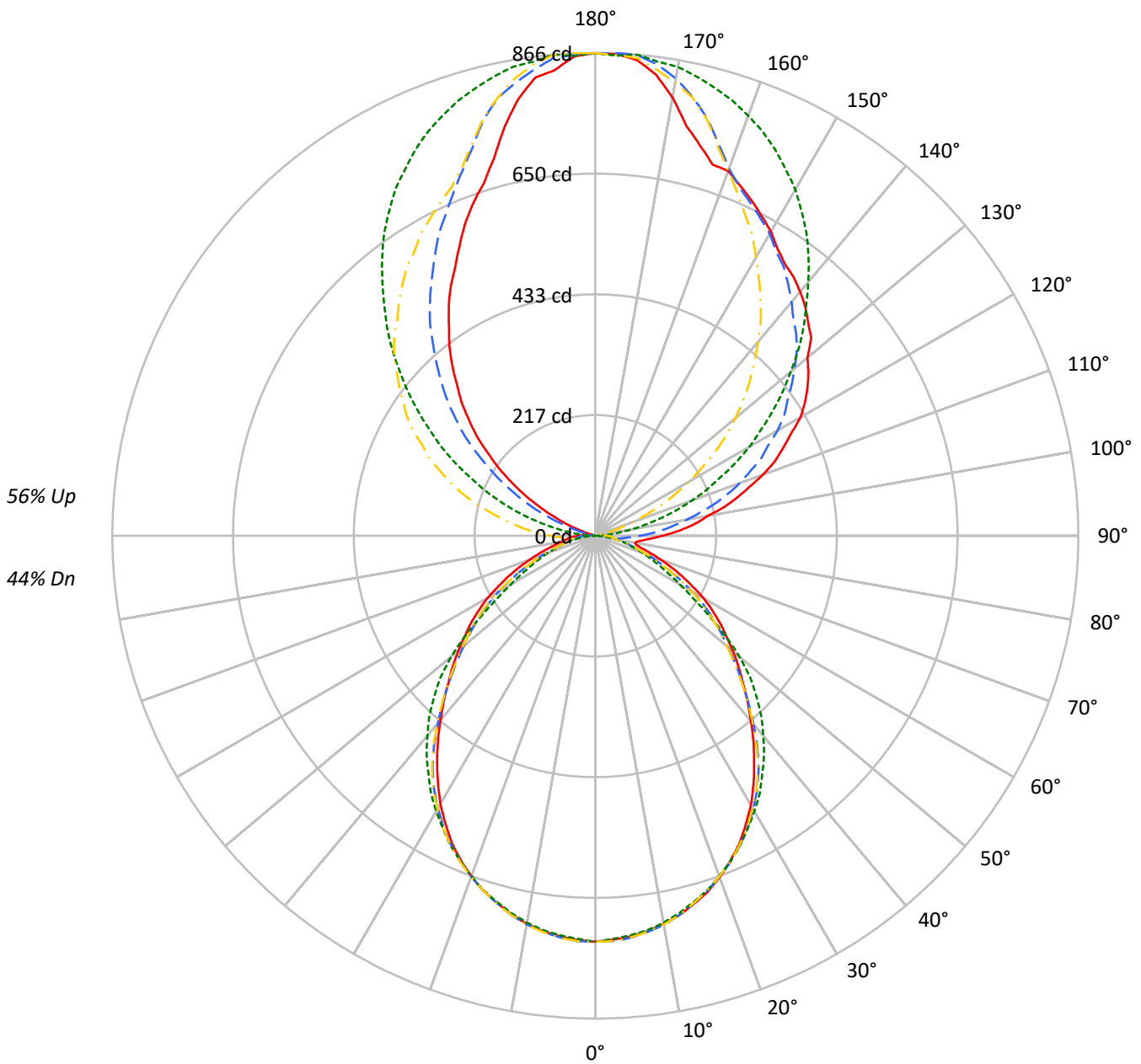
Lumens per Lamp: N/A
Luminaire Lumens: 3716.0 lumens
Efficiency: N/A
Efficacy: 97.3 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.17 / 1.24
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 38.2
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44				
1	97	92	89	85	88	85	82	79	71	68	66	57	56	54	45	44	43	38				
2	88	81	75	70	81	75	69	65	62	59	55	51	48	46	40	39	37	32				
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28				
4	74	64	56	50	68	59	52	47	49	44	40	41	37	34	32	30	28	24				
5	68	57	49	43	62	52	45	40	44	39	35	37	33	30	29	27	24	21				
6	63	51	43	37	57	47	40	35	40	35	31	33	29	26	27	24	22	19				
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	25	22	19	17				
8	54	42	34	29	49	39	32	27	33	28	24	28	24	21	23	20	17	15				
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16	14				
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	19	16	14	12				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	9403	9403	9403	9403
5°	9188	8576	9188	8576
10°	8942	7857	8942	7857
15°	8657	7173	8633	7173
20°	8327	6546	8304	6546
25°	7924	5960	7901	5960
30°	7425	5392	7393	5392
35°	6831	4838	6806	4838
40°	6228	4292	6192	4292
45°	5660	3730	5633	3730
50°	5185	3088	5156	3088
55°	4738	2286	4717	2286
60°	4248	1660	4237	1660
65°	3610	1229	3610	1229
70°	2966	916	2983	916
75°	2395	648	2445	648
80°	2475	424	2077	424
85°	3831	186	2091	186



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.4	1.8
10°-20°	192.2	5.2
20°-30°	281.2	7.6
30°-40°	317.4	8.5
40°-50°	294.7	7.9
50°-60°	231.6	6.2
60°-70°	146.4	3.9
70°-80°	73.3	2.0
80°-90°	46.4	1.2
90°-100°	69.5	1.9
100°-110°	133.3	3.6
110°-120°	229.8	6.2
120°-130°	312.0	8.4
130°-140°	355.9	9.6
140°-150°	355.4	9.6
150°-160°	309.5	8.3
160°-170°	217.6	5.9
170°-180°	81.1	2.2
0°-30°	541.9	14.6
0°-40°	859.3	23.1
0°-60°	1385.6	37.3
0°-90°	1651.8	44.4
90°-120°	432.6	11.6
90°-150°	1456.0	39.2
90°-180°	2064.0	55.5
0°-180°	3716.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	728	728	728	728	728	
5°	722	719	722	719	722	68
15°	684	680	682	680	684	193
25°	610	613	608	613	610	280
35°	496	522	495	522	496	310
45°	374	408	373	408	374	290
55°	273	246	272	246	273	244
65°	171	126	171	126	171	170
75°	85	61	87	61	85	96
85°	87	16	48	16	87	69
90°	120	1	29	1	120	66
95°	163	24	19	24	163	142
105°	262	121	5	121	262	277
115°	371	247	85	247	371	368
125°	464	387	211	387	464	415
135°	540	528	339	528	540	417
145°	594	660	457	660	594	374
155°	663	764	575	764	663	306
165°	725	831	701	831	725	206
175°	856	866	838	866	856	80
180°	865	865	865	865	865	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0
2.5°	725.2	726.5	727.7	725.5	723.6	724.9	727.7	726.5	725.9	726.5	727.7
5°	721.5	722.7	723.9	721.1	719.3	721.1	723.4	722.7	721.5	722.7	723.4
7.5°	715.6	716.8	716.8	715.5	713.7	715.0	716.2	716.2	715.6	716.2	716.2
10°	706.8	708.4	708.4	706.6	704.7	705.9	707.8	707.2	706.8	707.2	707.8
12.5°	696.8	697.2	696.6	694.7	693.2	694.7	696.6	696.0	695.6	696.0	696.6
15°	683.5	683.2	682.6	681.6	680.1	681.1	682.0	682.0	681.6	682.0	682.0
17.5°	669.5	668.3	667.6	668.0	667.1	668.0	667.1	667.6	667.6	667.6	667.1
20°	651.7	652.0	650.8	651.2	649.6	650.5	650.2	650.8	649.9	650.8	650.2
22.5°	631.5	632.4	633.1	632.5	631.9	631.9	632.5	631.2	630.3	631.2	632.5
25°	610.0	610.9	613.2	612.9	613.2	612.2	612.0	609.2	608.2	609.2	612.0
27.5°	583.9	587.6	590.8	592.0	591.7	591.4	589.5	585.8	582.1	585.8	589.5
30°	557.7	560.5	566.1	571.1	570.2	569.9	564.3	558.7	555.3	558.7	564.3
32.5°	527.8	531.6	540.0	546.9	548.5	545.7	538.2	529.1	525.4	529.1	538.2
35°	496.4	498.3	510.4	519.8	521.7	517.9	508.6	496.4	494.6	496.4	508.6
37.5°	465.6	464.7	476.8	493.6	497.1	491.8	475.0	462.8	463.8	462.8	475.0
40°	433.9	432.0	441.3	463.1	468.1	461.9	438.9	429.6	431.4	429.6	438.9
42.5°	404.0	402.1	406.1	431.4	441.1	430.1	404.4	399.7	401.6	399.7	404.4
45°	374.4	371.6	372.5	394.9	408.4	393.7	370.1	369.8	372.6	369.8	370.1
47.5°	348.2	343.6	340.8	357.0	376.6	356.4	338.3	341.8	346.5	341.8	338.3
50°	322.1	317.4	309.9	321.5	336.8	320.3	307.5	315.0	320.3	315.0	307.5
52.5°	295.9	293.1	282.3	287.9	292.9	286.7	280.4	290.7	294.2	290.7	280.4
55°	273.0	269.2	256.2	253.6	246.5	252.4	254.3	267.4	271.8	267.4	254.3
57.5°	247.8	245.9	230.0	219.1	206.4	217.9	228.1	244.0	246.5	244.0	228.1
60°	223.8	219.1	200.4	184.9	175.6	184.3	199.2	217.9	223.2	217.9	199.2
62.5°	195.7	192.9	172.4	153.2	148.8	152.5	171.2	191.7	195.2	191.7	171.2
65°	170.9	165.3	144.7	127.9	126.4	127.3	144.1	164.6	170.9	164.6	144.1
67.5°	147.6	138.2	120.5	105.8	106.7	105.8	119.8	137.6	147.6	137.6	119.8
70°	123.5	113.3	99.3	87.1	90.9	87.1	99.3	113.9	124.2	113.9	99.3
72.5°	103.9	91.8	80.6	71.3	74.4	70.7	80.6	92.5	105.2	92.5	80.6
75°	85.3	73.1	63.2	56.7	61.4	56.7	63.8	73.8	87.1	73.8	63.8
77.5°	75.2	62.5	48.3	45.5	49.2	45.5	48.8	60.7	72.7	60.7	48.8
80°	72.6	60.8	38.8	34.3	38.0	34.3	37.6	51.0	60.9	51.0	37.6
82.5°	76.9	67.7	40.6	24.0	25.9	24.0	33.2	45.7	53.7	45.7	33.2
85°	87.4	79.5	49.3	20.2	15.6	19.0	31.7	42.2	47.7	42.2	31.7
87.5°	102.0	97.4	62.4	25.6	3.7	17.1	27.5	38.8	39.0	38.8	27.5
90°	120.2	116.8	80.7	34.7	0.7	11.5	20.2	30.7	28.6	30.7	20.2
92.5°	142.3	137.8	100.4	48.0	9.8	5.9	16.8	24.8	22.7	24.8	16.8
95°	163.3	160.6	122.1	64.4	24.5	3.4	12.1	19.0	18.7	19.0	12.1
97.5°	185.6	182.5	143.3	85.4	43.3	7.3	8.3	14.6	14.6	14.6	8.3
100°	204.7	203.2	167.1	111.8	66.6	20.2	5.2	11.4	12.3	11.4	5.2
102.5°	235.8	226.6	192.1	136.8	91.6	37.8	10.1	6.7	8.6	6.7	10.1
105°	262.3	253.7	222.0	164.0	121.2	62.6	24.7	8.2	5.2	8.2	24.7
107.5°	288.6	282.5	248.9	190.9	151.8	90.1	45.5	23.5	14.9	23.5	45.5
110°	319.1	311.7	275.1	217.7	183.5	119.4	69.3	43.1	33.3	43.1	69.3



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CATALOG NUMBER: MWL-2-22-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	348.4	342.9	299.6	245.8	216.5	151.2	98.6	67.5	58.4	67.5	98.6
115°	371.0	367.9	327.6	272.0	247.0	187.1	131.0	96.2	85.2	96.2	131.0
117.5°	394.8	394.2	348.4	298.9	283.7	219.6	160.9	124.9	113.3	124.9	160.9
120°	424.7	419.9	377.1	325.8	318.4	253.7	193.9	157.9	146.2	157.9	193.9
122.5°	445.5	442.5	401.6	351.4	351.4	288.6	225.6	189.7	177.4	189.7	225.6
125°	464.4	463.2	419.9	377.1	386.9	321.0	261.1	224.4	211.0	224.4	261.1
127.5°	481.5	483.4	443.7	405.2	422.9	353.9	295.8	255.6	241.5	255.6	295.8
130°	496.2	502.3	466.3	430.9	457.1	389.9	327.0	286.7	277.5	286.7	327.0
132.5°	524.9	521.2	489.4	457.1	493.7	422.9	360.0	317.9	307.5	317.9	360.0
135°	539.6	540.8	509.6	479.7	527.9	455.9	391.2	349.6	339.3	349.6	391.2
137.5°	557.2	553.6	525.5	507.2	559.7	487.7	421.6	383.3	366.7	383.3	421.6
140°	571.0	570.4	547.1	531.6	593.9	518.8	453.8	414.6	399.4	414.6	453.8
142.5°	584.4	588.1	568.0	558.4	628.1	551.7	487.4	444.6	429.9	444.6	487.4
145°	593.6	601.5	588.7	593.0	660.4	589.4	516.7	473.3	457.4	473.3	516.7
147.5°	608.9	619.2	604.0	616.8	688.5	621.7	545.9	503.3	489.2	503.3	545.9
150°	629.6	634.6	625.3	649.8	717.2	657.7	575.9	531.9	517.9	531.9	575.9
152.5°	646.1	652.2	641.8	685.8	739.8	690.7	608.9	560.0	543.5	560.0	608.9
155°	663.2	665.7	658.4	720.7	763.6	723.1	635.1	591.1	575.3	591.1	635.1
157.5°	679.1	684.0	675.5	746.9	784.4	751.2	665.1	622.3	608.2	622.3	665.1
160°	696.2	696.2	701.0	776.5	801.5	774.6	696.8	656.5	637.0	656.5	696.8
162.5°	698.1	709.6	735.9	797.9	818.0	796.0	731.0	681.0	663.8	681.0	731.0
165°	724.9	735.3	775.0	816.8	830.9	815.0	773.1	721.2	701.0	721.2	773.1
167.5°	753.0	775.0	805.8	838.1	843.0	832.6	804.6	769.5	751.2	769.5	804.6
170°	797.9	817.7	832.6	847.0	853.7	847.7	824.7	808.0	795.4	808.0	824.7
172.5°	833.8	846.1	852.2	861.7	857.4	855.0	843.0	834.5	828.4	834.5	843.0
175°	856.4	859.0	865.3	862.3	866.0	859.2	859.9	863.2	838.1	863.2	859.9
177.5°	864.4	868.7	866.5	861.1	861.7	860.5	862.9	864.4	860.7	864.4	862.9
180°	865.3	865.3	865.3	865.3	865.3	865.3	865.3	865.3	865.3	865.3	865.3



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CATALOG NUMBER: MWL-2-22-17-UNV-L830-EDD

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	728.0	728.0	728.0	728.0	728.0	728.0
2.5°	724.9	723.6	725.5	727.7	726.5	725.2
5°	721.1	719.3	721.1	723.9	722.7	721.5
7.5°	715.0	713.7	715.5	716.8	716.8	715.6
10°	705.9	704.7	706.6	708.4	708.4	706.8
12.5°	694.7	693.2	694.7	696.6	697.2	696.8
15°	681.1	680.1	681.6	682.6	683.2	683.5
17.5°	668.0	667.1	668.0	667.6	668.3	669.5
20°	650.5	649.6	651.2	650.8	652.0	651.7
22.5°	631.9	631.9	632.5	633.1	632.4	631.5
25°	612.2	613.2	612.9	613.2	610.9	610.0
27.5°	591.4	591.7	592.0	590.8	587.6	583.9
30°	569.9	570.2	571.1	566.1	560.5	557.7
32.5°	545.7	548.5	546.9	540.0	531.6	527.8
35°	517.9	521.7	519.8	510.4	498.3	496.4
37.5°	491.8	497.1	493.6	476.8	464.7	465.6
40°	461.9	468.1	463.1	441.3	432.0	433.9
42.5°	430.1	441.1	431.4	406.1	402.1	404.0
45°	393.7	408.4	394.9	372.5	371.6	374.4
47.5°	356.4	376.6	357.0	340.8	343.6	348.2
50°	320.3	336.8	321.5	309.9	317.4	322.1
52.5°	286.7	292.9	287.9	282.3	293.1	295.9
55°	252.4	246.5	253.6	256.2	269.2	273.0
57.5°	217.9	206.4	219.1	230.0	245.9	247.8
60°	184.3	175.6	184.9	200.4	219.1	223.8
62.5°	152.5	148.8	153.2	172.4	192.9	195.7
65°	127.3	126.4	127.9	144.7	165.3	170.9
67.5°	105.8	106.7	105.8	120.5	138.2	147.6
70°	87.1	90.9	87.1	99.3	113.3	123.5
72.5°	70.7	74.4	71.3	80.6	91.8	103.9
75°	56.7	61.4	56.7	63.2	73.1	85.3
77.5°	45.5	49.2	45.5	48.3	62.5	75.2
80°	34.3	38.0	34.3	38.8	60.8	72.6
82.5°	24.0	25.9	24.0	40.6	67.7	76.9
85°	19.0	15.6	20.2	49.3	79.5	87.4
87.5°	17.1	3.7	25.6	62.4	97.4	102.0
90°	11.5	0.7	34.7	80.7	116.8	120.2
92.5°	5.9	9.8	48.0	100.4	137.8	142.3
95°	3.4	24.5	64.4	122.1	160.6	163.3
97.5°	7.3	43.3	85.4	143.3	182.5	185.6
100°	20.2	66.6	111.8	167.1	203.2	204.7
102.5°	37.8	91.6	136.8	192.1	226.6	235.8
105°	62.6	121.2	164.0	222.0	253.7	262.3
107.5°	90.1	151.8	190.9	248.9	282.5	288.6
110°	119.4	183.5	217.7	275.1	311.7	319.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	151.2	216.5	245.8	299.6	342.9	348.4
115°	187.1	247.0	272.0	327.6	367.9	371.0
117.5°	219.6	283.7	298.9	348.4	394.2	394.8
120°	253.7	318.4	325.8	377.1	419.9	424.7
122.5°	288.6	351.4	351.4	401.6	442.5	445.5
125°	321.0	386.9	377.1	419.9	463.2	464.4
127.5°	353.9	422.9	405.2	443.7	483.4	481.5
130°	389.9	457.1	430.9	466.3	502.3	496.2
132.5°	422.9	493.7	457.1	489.4	521.2	524.9
135°	455.9	527.9	479.7	509.6	540.8	539.6
137.5°	487.7	559.7	507.2	525.5	553.6	557.2
140°	518.8	593.9	531.6	547.1	570.4	571.0
142.5°	551.7	628.1	558.4	568.0	588.1	584.4
145°	589.4	660.4	593.0	588.7	601.5	593.6
147.5°	621.7	688.5	616.8	604.0	619.2	608.9
150°	657.7	717.2	649.8	625.3	634.6	629.6
152.5°	690.7	739.8	685.8	641.8	652.2	646.1
155°	723.1	763.6	720.7	658.4	665.7	663.2
157.5°	751.2	784.4	746.9	675.5	684.0	679.1
160°	774.6	801.5	776.5	701.0	696.2	696.2
162.5°	796.0	818.0	797.9	735.9	709.6	698.1
165°	815.0	830.9	816.8	775.0	735.3	724.9
167.5°	832.6	843.0	838.1	805.8	775.0	753.0
170°	847.7	853.7	847.0	832.6	817.7	797.9
172.5°	855.0	857.4	861.7	852.2	846.1	833.8
175°	859.2	866.0	862.3	865.3	859.0	856.4
177.5°	860.5	861.7	861.1	866.5	868.7	864.4
180°	865.3	865.3	865.3	865.3	865.3	865.3

(END OF REPORT)