

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: P392495

Luminaire Tested: **MWL-2-18-23-UNV-L940-EDD**

Issue Date: 12/2/2019

Test Information

Test Method: LM-79-08
Report Number: P392495
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-2-18-23-UNV-L940-EDD
Description: MWL 2FT MEDICAL LED FIXTURE
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

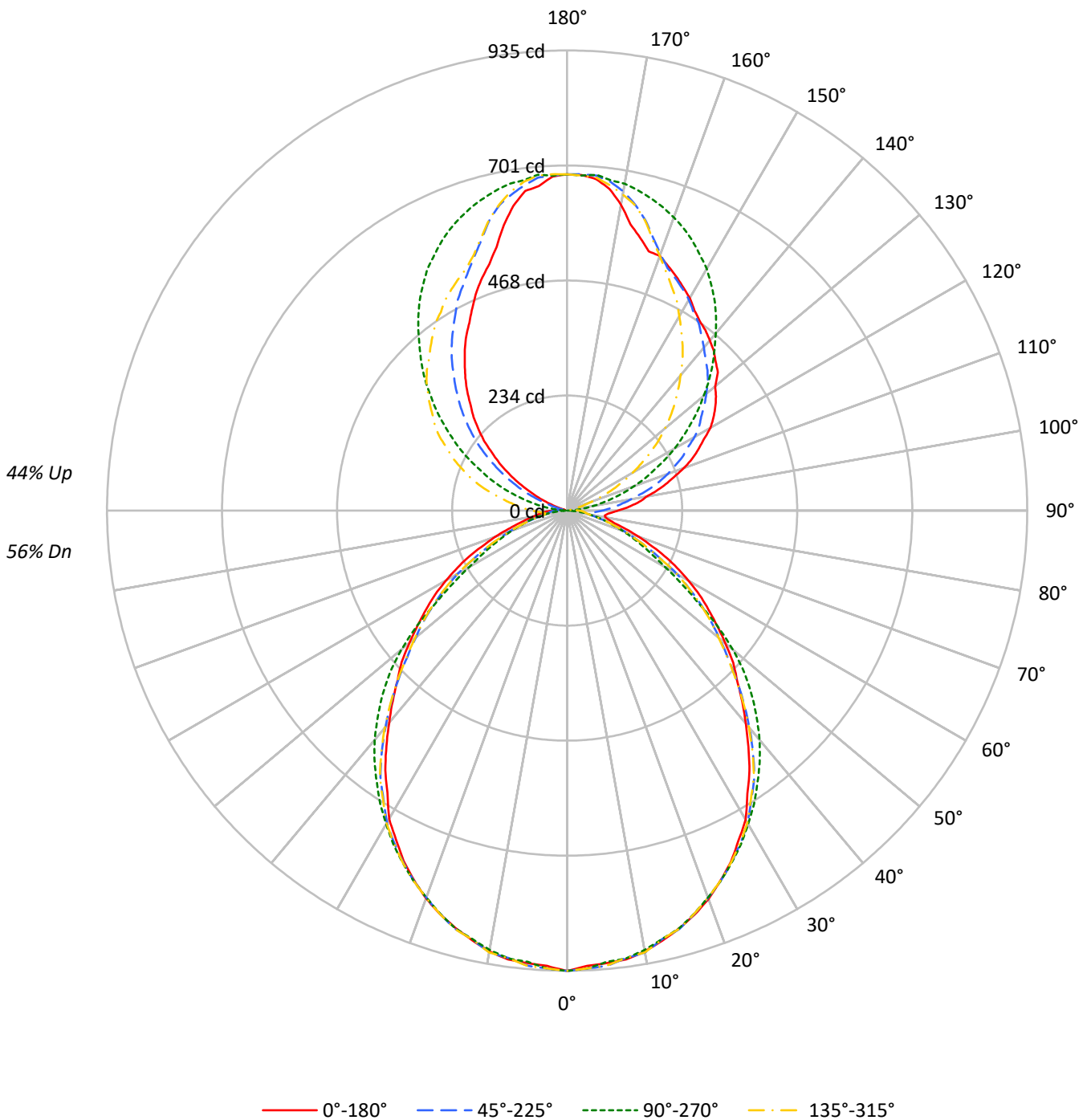
Lumens per Lamp: N/A
Luminaire Lumens: 3756.4 lumens
Efficiency: N/A
Efficacy: 94.6 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.18 / 1.25
Luminous Opening: Rectangular w/ Sides (W: 0.42' x L: 2' x H: 0.42')
CIE Type: General Diffuse

Input Watts (W): 39.693
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





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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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56
1	100	95	91	88	92	89	86	83	77	74	72	66	64	62	55	54	53	48
2	91	84	78	73	85	78	73	69	68	64	60	58	55	53	49	47	45	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	41	39	35
4	77	66	58	52	71	62	55	50	54	48	44	47	42	39	40	37	34	31
5	70	59	51	45	65	55	48	43	48	43	38	42	38	34	36	33	30	27
6	65	53	45	39	60	50	43	37	44	38	34	38	34	30	33	29	27	24
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	27	24	21
8	56	44	36	31	52	41	34	29	36	31	27	32	27	24	28	24	21	19
9	52	40	33	28	49	38	31	26	34	28	24	29	25	22	26	22	19	17
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	12082	12082	12082	12082
5°	11753	10974	11753	10974
10°	11506	10105	11506	10105
15°	11133	9268	11115	9268
20°	10731	8430	10712	8430
25°	10228	7679	10209	7679
30°	9658	6953	9632	6953
35°	8885	6254	8865	6254
40°	8103	5577	8076	5577
45°	7385	4848	7364	4848
50°	6750	4036	6726	4036
55°	6081	2997	6066	2997
60°	5399	2176	5389	2176
65°	4612	1630	4612	1630
70°	3701	1203	3711	1203
75°	2816	850	2855	850
80°	2680	523	2366	523
85°	3572	223	2196	223



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	87.9	2.3
10°-20°	247.5	6.6
20°-30°	363.1	9.7
30°-40°	411.8	11.0
40°-50°	384.1	10.2
50°-60°	300.3	8.0
60°-70°	186.3	5.0
70°-80°	90.2	2.4
80°-90°	48.7	1.3
90°-100°	58.3	1.6
100°-110°	105.6	2.8
110°-120°	181.7	4.8
120°-130°	247.2	6.6
130°-140°	281.7	7.5
140°-150°	281.1	7.5
150°-160°	244.7	6.5
160°-170°	172.0	4.6
170°-180°	64.0	1.7
0°-30°	698.6	18.6
0°-40°	1110.4	29.6
0°-60°	1794.8	47.8
0°-90°	2120.0	56.4
90°-120°	345.6	9.2
90°-150°	1155.6	30.8
90°-180°	1636.0	43.6
0°-180°	3756.4	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	935	935	935	935	935	
5°	923	920	923	920	923	88
15°	879	879	878	879	879	248
25°	787	790	786	790	787	362
35°	646	674	644	674	646	403
45°	488	531	487	531	488	379
55°	350	323	350	323	350	314
65°	218	168	218	168	218	216
75°	100	81	102	81	100	113
85°	82	19	50	19	82	66
90°	103	0	31	0	103	57
95°	135	19	21	19	135	117
105°	207	96	4	96	207	219
115°	294	195	68	195	294	291
125°	368	306	168	306	368	328
135°	427	418	269	418	427	330
145°	470	522	362	522	470	296
155°	525	604	455	604	525	242
165°	573	657	555	657	573	163
175°	676	685	662	685	676	63
180°	683	683	683	683	683	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4	935.4
2.5°	925.8	935.9	931.3	931.0	931.0	930.4	931.3	935.9	926.2	935.9	931.3
5°	923.0	930.4	928.6	927.7	920.4	927.7	928.1	930.4	923.0	930.4	928.1
7.5°	919.8	923.6	917.2	919.5	917.7	919.0	916.7	923.1	919.8	923.1	916.7
10°	909.5	910.8	911.7	907.2	906.3	906.7	911.3	909.8	909.5	909.8	911.3
12.5°	894.9	896.2	892.1	894.9	891.6	894.9	892.1	895.2	894.0	895.2	892.1
15°	879.0	883.5	880.3	877.6	878.8	877.0	879.8	882.5	877.6	882.5	879.8
17.5°	860.8	862.5	859.3	858.8	858.8	858.8	858.8	862.1	859.3	862.1	858.8
20°	839.9	840.2	837.5	836.0	836.5	835.6	836.9	839.3	838.4	839.3	836.9
22.5°	813.8	818.4	814.7	816.9	814.6	816.4	814.2	817.4	812.9	817.4	814.2
25°	787.4	790.1	789.7	793.2	790.0	792.7	788.6	788.6	785.9	788.6	788.6
27.5°	754.6	758.2	762.3	765.5	764.5	765.0	761.3	756.8	753.1	756.8	761.3
30°	725.4	723.6	733.6	735.9	735.3	734.9	732.2	722.1	723.5	722.1	732.2
32.5°	681.7	687.2	696.3	706.7	706.6	705.7	694.8	685.2	679.8	685.2	694.8
35°	645.7	649.3	663.0	674.9	674.3	673.4	661.5	647.9	644.2	647.9	661.5
37.5°	604.7	605.6	620.2	640.2	642.9	638.8	618.7	604.2	603.2	604.2	618.7
40°	564.6	563.7	576.5	599.7	608.3	598.7	574.5	561.8	562.7	561.8	574.5
42.5°	526.3	522.7	531.4	561.4	570.0	560.4	529.9	520.8	524.4	520.8	529.9
45°	488.5	484.0	486.7	514.0	530.8	513.0	484.8	482.5	487.1	482.5	484.8
47.5°	457.6	445.7	443.0	466.1	488.9	465.7	441.1	444.3	456.1	444.3	441.1
50°	419.3	412.9	403.8	420.6	440.2	419.7	401.9	411.0	417.8	411.0	401.9
52.5°	383.8	381.0	367.7	375.0	383.7	374.1	366.4	379.1	382.3	379.1	366.4
55°	350.4	345.9	331.3	329.0	323.1	328.1	329.9	344.5	349.5	344.5	329.9
57.5°	319.4	313.1	293.0	285.3	274.8	284.4	291.6	311.7	318.5	311.7	291.6
60°	284.4	278.9	257.9	238.3	230.1	237.9	257.0	278.0	283.9	278.0	257.0
62.5°	251.6	242.4	216.9	198.3	196.0	197.8	216.0	241.5	251.1	241.5	216.0
65°	218.3	204.6	182.8	164.5	167.7	164.1	182.3	204.2	218.3	204.2	182.3
67.5°	182.8	170.9	151.8	134.9	142.2	134.9	151.3	170.5	182.8	170.5	151.3
70°	154.1	139.5	124.0	111.2	119.4	111.2	124.0	139.9	154.5	139.9	124.0
72.5°	124.9	112.2	99.4	91.2	97.0	90.7	99.4	112.6	125.8	112.6	99.4
75°	100.3	88.5	77.9	71.5	80.6	71.5	78.4	88.9	101.7	88.9	78.4
77.5°	86.8	73.1	58.8	56.9	64.2	56.9	59.3	71.6	84.9	71.6	59.3
80°	78.6	68.0	46.6	42.4	46.9	42.4	45.6	60.2	69.4	60.2	45.6
82.5°	77.4	69.4	45.1	30.5	33.3	30.5	39.3	52.1	59.1	52.1	39.3
85°	81.5	76.6	49.3	23.8	18.7	22.9	35.4	47.2	50.1	47.2	35.4
87.5°	90.6	89.0	58.7	25.6	4.6	18.8	31.3	42.7	40.9	42.7	31.3
90°	103.0	101.9	71.5	30.2	0.5	11.9	23.8	33.9	30.7	33.9	23.8
92.5°	119.6	116.6	84.8	38.8	7.7	5.6	18.8	27.4	25.1	27.4	18.8
95°	134.8	131.9	99.1	51.0	19.3	2.8	12.4	20.1	20.6	20.1	12.4
97.5°	151.4	147.2	114.0	68.4	35.2	6.7	7.5	14.7	16.5	14.7	7.5
100°	163.9	160.6	132.0	89.1	53.5	16.9	4.3	9.3	12.0	9.3	4.3
102.5°	185.9	179.2	151.8	108.9	73.2	30.8	8.1	5.6	6.6	5.6	8.1
105°	207.2	200.4	175.4	129.6	95.8	49.6	19.7	6.7	4.3	6.7	19.7
107.5°	227.9	223.0	196.6	150.8	120.0	71.2	36.1	18.8	12.0	18.8	36.1
110°	252.0	246.2	217.3	172.0	145.0	94.4	54.8	34.2	26.4	34.2	54.8



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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°	275.2	270.8	236.6	194.2	171.0	119.4	78.0	53.5	46.2	53.5	78.0
115°	293.8	290.5	258.8	214.9	195.2	147.9	103.6	76.1	68.3	76.1	103.6
117.5°	312.7	312.1	275.2	236.1	224.0	173.5	127.2	99.7	90.5	99.7	127.2
120°	336.3	332.5	298.7	258.2	252.5	201.4	154.1	125.6	116.5	125.6	154.1
122.5°	352.7	350.2	318.0	278.4	278.4	228.8	179.2	150.7	141.1	150.7	179.2
125°	367.6	366.6	332.5	298.7	306.4	254.4	207.1	178.2	167.6	178.2	207.1
127.5°	381.1	382.6	351.2	320.9	334.8	280.3	234.6	202.8	191.7	202.8	234.6
130°	392.7	397.5	369.1	341.1	361.8	308.8	259.2	227.4	220.1	227.4	259.2
132.5°	415.3	412.5	387.4	361.8	390.8	334.8	285.2	251.9	243.7	251.9	285.2
135°	426.9	427.9	403.3	379.7	417.7	360.9	309.8	277.0	268.8	277.0	309.8
137.5°	440.9	438.0	415.8	401.3	442.8	385.9	333.8	303.5	290.5	303.5	333.8
140°	451.0	450.5	432.2	420.7	469.8	410.5	358.4	327.6	315.5	327.6	358.4
142.5°	461.6	464.5	448.5	441.8	496.7	436.5	384.9	351.2	339.7	351.2	384.9
145°	469.8	476.0	465.8	468.3	522.3	465.5	409.0	374.8	362.3	374.8	409.0
147.5°	481.8	490.0	477.9	488.1	544.5	491.9	432.1	398.4	387.3	398.4	432.1
150°	498.2	502.0	494.8	513.1	567.2	519.4	455.7	421.0	410.0	421.0	455.7
152.5°	511.1	516.0	507.8	541.6	584.9	545.5	481.8	443.3	430.2	443.3	481.8
155°	524.7	526.6	520.8	569.1	603.8	571.0	502.5	467.8	455.3	467.8	502.5
157.5°	537.2	541.0	533.4	589.8	620.1	593.1	525.2	492.4	481.3	492.4	525.2
160°	550.7	550.7	553.7	613.9	633.7	612.4	550.3	519.3	503.9	519.3	550.3
162.5°	552.1	561.3	581.1	630.8	646.6	629.3	577.3	538.6	525.2	538.6	577.3
165°	573.4	580.6	612.0	645.7	656.7	644.2	610.5	569.5	554.6	569.5	610.5
167.5°	595.5	612.0	637.0	662.6	666.4	658.2	636.0	607.6	594.0	607.6	636.0
170°	630.8	645.7	658.2	668.8	674.1	669.3	652.0	638.0	628.8	638.0	652.0
172.5°	659.2	668.8	673.7	680.4	677.0	675.0	666.4	659.6	654.8	659.6	666.4
175°	676.1	679.0	683.2	681.8	684.7	679.4	679.0	682.3	661.6	682.3	679.0
177.5°	682.3	686.6	684.2	680.8	681.3	680.3	681.3	683.2	679.5	683.2	681.3
180°	683.2	683.2	683.2	683.2	683.2	683.2	683.2	683.2	683.2	683.2	683.2



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	935.4	935.4	935.4	935.4	935.4	935.4
2.5°	930.4	931.0	931.0	931.3	935.9	925.8
5°	927.7	920.4	927.7	928.6	930.4	923.0
7.5°	919.0	917.7	919.5	917.2	923.6	919.8
10°	906.7	906.3	907.2	911.7	910.8	909.5
12.5°	894.9	891.6	894.9	892.1	896.2	894.9
15°	877.0	878.8	877.6	880.3	883.5	879.0
17.5°	858.8	858.8	858.8	859.3	862.5	860.8
20°	835.6	836.5	836.0	837.5	840.2	839.9
22.5°	816.4	814.6	816.9	814.7	818.4	813.8
25°	792.7	790.0	793.2	789.7	790.1	787.4
27.5°	765.0	764.5	765.5	762.3	758.2	754.6
30°	734.9	735.3	735.9	733.6	723.6	725.4
32.5°	705.7	706.6	706.7	696.3	687.2	681.7
35°	673.4	674.3	674.9	663.0	649.3	645.7
37.5°	638.8	642.9	640.2	620.2	605.6	604.7
40°	598.7	608.3	599.7	576.5	563.7	564.6
42.5°	560.4	570.0	561.4	531.4	522.7	526.3
45°	513.0	530.8	514.0	486.7	484.0	488.5
47.5°	465.7	488.9	466.1	443.0	445.7	457.6
50°	419.7	440.2	420.6	403.8	412.9	419.3
52.5°	374.1	383.7	375.0	367.7	381.0	383.8
55°	328.1	323.1	329.0	331.3	345.9	350.4
57.5°	284.4	274.8	285.3	293.0	313.1	319.4
60°	237.9	230.1	238.3	257.9	278.9	284.4
62.5°	197.8	196.0	198.3	216.9	242.4	251.6
65°	164.1	167.7	164.5	182.8	204.6	218.3
67.5°	134.9	142.2	134.9	151.8	170.9	182.8
70°	111.2	119.4	111.2	124.0	139.5	154.1
72.5°	90.7	97.0	91.2	99.4	112.2	124.9
75°	71.5	80.6	71.5	77.9	88.5	100.3
77.5°	56.9	64.2	56.9	58.8	73.1	86.8
80°	42.4	46.9	42.4	46.6	68.0	78.6
82.5°	30.5	33.3	30.5	45.1	69.4	77.4
85°	22.9	18.7	23.8	49.3	76.6	81.5
87.5°	18.8	4.6	25.6	58.7	89.0	90.6
90°	11.9	0.5	30.2	71.5	101.9	103.0
92.5°	5.6	7.7	38.8	84.8	116.6	119.6
95°	2.8	19.3	51.0	99.1	131.9	134.8
97.5°	6.7	35.2	68.4	114.0	147.2	151.4
100°	16.9	53.5	89.1	132.0	160.6	163.9
102.5°	30.8	73.2	108.9	151.8	179.2	185.9
105°	49.6	95.8	129.6	175.4	200.4	207.2
107.5°	71.2	120.0	150.8	196.6	223.0	227.9
110°	94.4	145.0	172.0	217.3	246.2	252.0



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	119.4	171.0	194.2	236.6	270.8	275.2
115°	147.9	195.2	214.9	258.8	290.5	293.8
117.5°	173.5	224.0	236.1	275.2	312.1	312.7
120°	201.4	252.5	258.2	298.7	332.5	336.3
122.5°	228.8	278.4	278.4	318.0	350.2	352.7
125°	254.4	306.4	298.7	332.5	366.6	367.6
127.5°	280.3	334.8	320.9	351.2	382.6	381.1
130°	308.8	361.8	341.1	369.1	397.5	392.7
132.5°	334.8	390.8	361.8	387.4	412.5	415.3
135°	360.9	417.7	379.7	403.3	427.9	426.9
137.5°	385.9	442.8	401.3	415.8	438.0	440.9
140°	410.5	469.8	420.7	432.2	450.5	451.0
142.5°	436.5	496.7	441.8	448.5	464.5	461.6
145°	465.5	522.3	468.3	465.8	476.0	469.8
147.5°	491.9	544.5	488.1	477.9	490.0	481.8
150°	519.4	567.2	513.1	494.8	502.0	498.2
152.5°	545.5	584.9	541.6	507.8	516.0	511.1
155°	571.0	603.8	569.1	520.8	526.6	524.7
157.5°	593.1	620.1	589.8	533.4	541.0	537.2
160°	612.4	633.7	613.9	553.7	550.7	550.7
162.5°	629.3	646.6	630.8	581.1	561.3	552.1
165°	644.2	656.7	645.7	612.0	580.6	573.4
167.5°	658.2	666.4	662.6	637.0	612.0	595.5
170°	669.3	674.1	668.8	658.2	645.7	630.8
172.5°	675.0	677.0	680.4	673.7	668.8	659.2
175°	679.4	684.7	681.8	683.2	679.0	676.1
177.5°	680.3	681.3	680.8	684.2	686.6	682.3
180°	683.2	683.2	683.2	683.2	683.2	683.2

(END OF REPORT)