

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: P392477

Luminaire Tested: **MWL-2-13-17-UNV-L840-EDD**

Issue Date: 12/2/2019

**Test Information**

Test Method: LM-79-08  
Report Number: P392477  
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-2-13-17-UNV-L840-EDD  
Description: MWL 2FT MEDICAL LED FIXTURE  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3095.2 lumens  
Efficiency: N/A  
Efficacy: 108.6 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

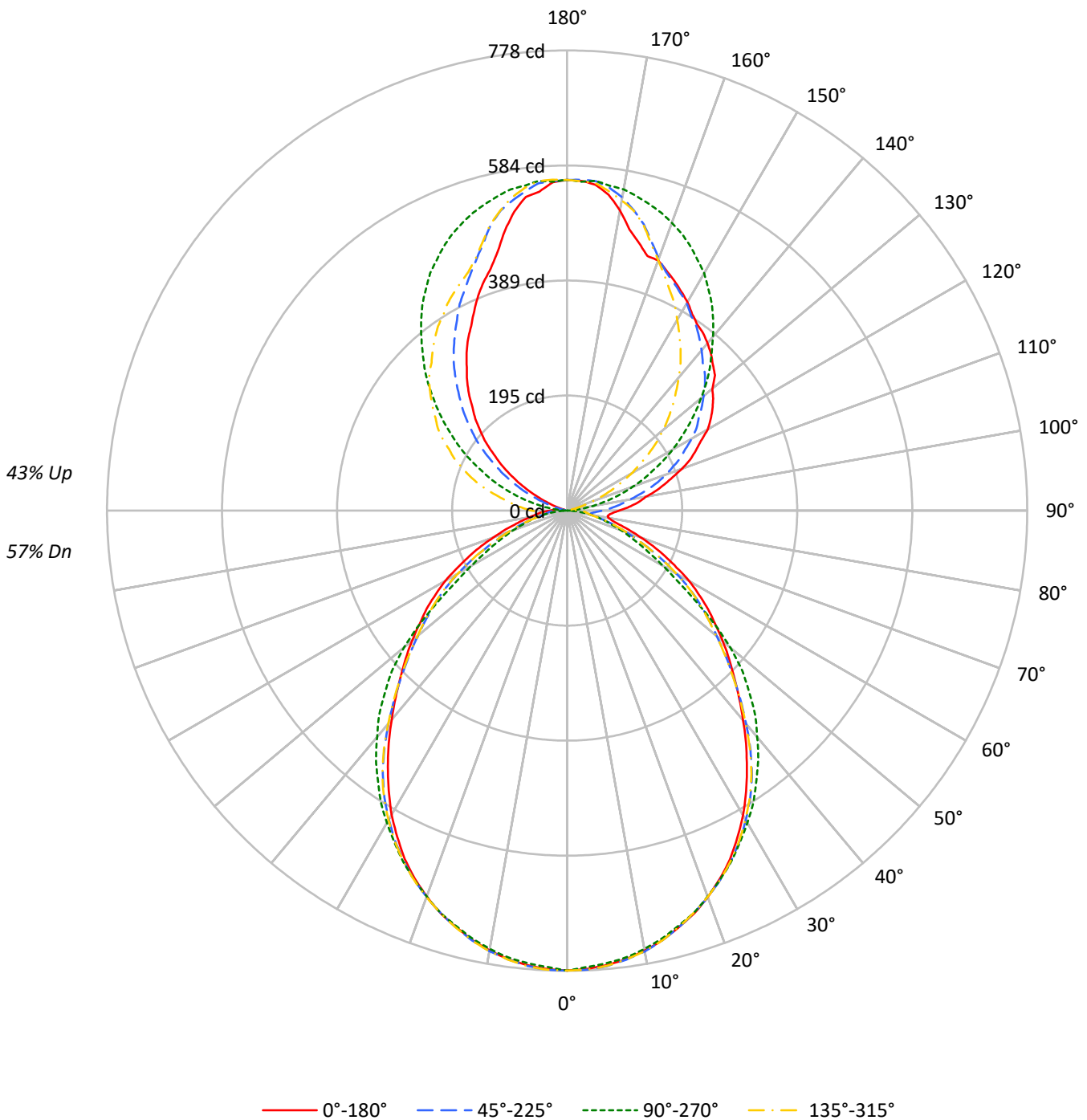
Input Watts (W): 28.5  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	57
1	100	95	91	88	93	89	86	83	77	74	72	66	64	62	56	54	53	48
2	91	84	78	73	85	78	73	69	68	64	60	58	55	53	49	47	46	41
3	83	74	67	61	77	69	63	58	60	55	51	52	48	45	44	42	39	35
4	77	66	58	52	71	62	55	49	54	49	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	37	31	27	32	27	24	28	24	22	19
9	52	40	33	28	49	38	31	26	34	28	24	30	25	22	26	22	20	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°	10045	10045	10045	10045
5°	9824	9158	9824	9158
10°	9555	8393	9555	8393
15°	9238	7666	9224	7666
20°	8885	6999	8871	6999
25°	8458	6371	8442	6371
30°	7923	5763	7902	5763
35°	7291	5170	7274	5170
40°	6642	4584	6619	4584
45°	6038	3982	6020	3982
50°	5528	3297	5509	3297
55°	5051	2441	5037	2441
60°	4529	1770	4522	1770
65°	3849	1310	3849	1310
70°	3166	976	3175	976
75°	2549	690	2583	690
80°	2407	450	2155	450
85°	3169	196	2047	196



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	73.1	2.4
10°-20°	205.4	6.6
20°-30°	300.4	9.7
30°-40°	339.0	11.0
40°-50°	314.7	10.2
50°-60°	247.2	8.0
60°-70°	156.2	5.0
70°-80°	77.7	2.5
80°-90°	42.6	1.4
90°-100°	49.3	1.6
100°-110°	86.6	2.8
110°-120°	148.7	4.8
120°-130°	201.7	6.5
130°-140°	230.0	7.4
140°-150°	229.8	7.4
150°-160°	200.0	6.5
160°-170°	140.6	4.5
170°-180°	52.3	1.7
0°-30°	578.9	18.7
0°-40°	917.9	29.7
0°-60°	1479.8	47.8
0°-90°	1756.2	56.7
90°-120°	284.5	9.2
90°-150°	945.9	30.6
90°-180°	1339.0	43.3
0°-180°	3095.2	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	778	778	778	778	778	
5°	772	768	772	768	772	73
15°	729	727	728	727	729	206
25°	651	656	650	656	651	299
35°	530	558	529	558	530	331
45°	399	436	398	436	399	309
55°	291	263	290	263	291	260
65°	182	135	182	135	182	181
75°	91	65	92	65	91	100
85°	72	16	47	16	72	59
90°	88	0	29	0	88	49
95°	113	16	19	16	113	97
105°	170	79	4	79	170	180
115°	240	160	55	160	240	238
125°	300	250	136	250	300	268
135°	348	341	219	341	348	269
145°	384	426	296	426	384	242
155°	429	493	372	493	429	198
165°	468	536	453	536	468	133
175°	553	559	541	559	553	52
180°	559	559	559	559	559	



TEST NUMBER: P392477

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	777.7	777.7	777.7	777.7	777.7	777.7	777.7	777.7	777.7	777.7	777.7
2.5°	775.5	776.3	777.1	774.4	772.4	774.1	777.1	776.3	775.9	776.3	777.1
5°	771.5	772.3	773.1	770.1	768.1	770.1	772.7	772.3	771.5	772.3	772.7
7.5°	764.9	765.7	765.7	764.1	762.1	763.7	765.3	765.3	764.9	765.3	765.3
10°	755.3	756.7	756.7	754.7	752.7	754.3	756.3	755.9	755.3	755.9	756.3
12.5°	744.1	744.7	744.3	742.3	740.9	742.3	744.3	743.9	743.3	743.9	744.3
15°	729.4	729.7	729.3	728.3	726.9	727.9	728.9	728.9	728.3	728.9	728.9
17.5°	714.4	713.7	713.3	713.9	712.9	713.9	712.9	713.3	713.3	713.3	712.9
20°	695.4	696.1	695.3	695.9	694.5	695.5	694.9	695.3	694.3	695.3	694.9
22.5°	674.1	675.1	676.3	675.9	675.5	675.5	675.9	674.3	673.3	674.3	675.9
25°	651.1	652.1	654.7	654.9	655.5	654.5	653.9	650.9	649.9	650.9	653.9
27.5°	623.1	627.1	630.7	632.3	632.5	631.9	629.9	625.9	621.9	625.9	629.9
30°	595.1	598.1	604.1	609.7	609.5	608.9	602.9	596.9	593.5	596.9	602.9
32.5°	563.1	567.1	576.1	583.7	585.9	582.9	574.9	565.5	561.5	565.5	574.9
35°	529.8	531.8	544.7	554.7	557.5	553.5	543.5	530.6	528.6	530.6	543.5
37.5°	496.8	495.8	508.8	526.8	531.0	525.6	507.6	494.6	495.6	494.6	507.6
40°	462.8	460.8	470.8	494.4	500.0	493.6	469.2	459.2	461.2	459.2	469.2
42.5°	430.8	428.8	433.4	460.4	471.0	459.6	432.2	427.2	429.2	427.2	432.2
45°	399.4	396.4	397.4	421.4	436.0	420.6	395.8	395.2	398.2	395.2	395.8
47.5°	371.4	366.4	363.4	381.0	402.0	380.6	361.8	365.2	370.2	365.2	361.8
50°	343.4	338.4	330.4	343.0	359.6	342.2	328.8	336.8	342.2	336.8	328.8
52.5°	315.4	312.4	301.0	307.0	312.6	306.2	299.8	310.8	314.2	310.8	299.8
55°	291.0	287.0	273.0	270.6	263.2	269.8	271.8	285.8	290.2	285.8	271.8
57.5°	264.0	262.0	245.0	233.6	220.2	232.8	243.8	260.8	263.2	260.8	243.8
60°	238.6	233.6	213.6	197.2	187.2	196.8	212.8	232.8	238.2	232.8	212.8
62.5°	208.6	205.6	183.6	163.2	158.8	162.8	182.8	204.8	208.2	204.8	182.8
65°	182.2	176.2	154.2	136.2	134.8	135.8	153.8	175.8	182.2	175.8	153.8
67.5°	157.2	147.2	128.2	112.8	113.8	112.8	127.8	146.8	157.2	146.8	127.8
70°	131.8	120.8	105.8	92.8	96.8	92.8	105.8	121.2	132.2	121.2	105.8
72.5°	110.8	97.8	85.8	75.8	79.4	75.4	85.8	98.2	111.6	98.2	85.8
75°	90.8	77.8	67.4	60.4	65.4	60.4	67.8	78.2	92.0	78.2	67.8
77.5°	77.9	65.4	51.4	48.4	52.4	48.4	51.8	64.2	76.4	64.2	51.8
80°	70.6	59.9	40.6	36.4	40.4	36.4	39.8	53.6	63.2	53.6	39.8
82.5°	69.1	61.5	39.3	25.4	27.4	25.4	34.6	47.4	54.1	47.4	34.6
85°	72.3	66.4	43.0	20.6	16.4	19.8	31.5	42.3	46.7	42.3	31.5
87.5°	78.5	75.9	49.4	22.5	4.0	17.0	26.9	38.1	37.9	38.1	26.9
90°	87.9	86.9	59.6	26.8	0.4	11.8	20.6	31.4	28.8	31.4	20.6
92.5°	100.2	98.5	71.2	33.0	6.3	5.8	17.2	25.6	23.0	25.6	17.2
95°	112.6	111.2	83.1	42.0	15.8	2.6	12.2	19.8	19.2	19.8	12.2
97.5°	124.9	122.9	94.4	55.2	28.0	4.7	7.4	14.6	14.6	14.6	7.4
100°	135.3	133.9	108.2	72.1	42.9	13.0	3.8	10.2	11.2	10.2	3.8
102.5°	153.7	147.0	124.3	88.3	59.1	24.4	6.9	5.2	7.2	5.2	6.9
105°	169.6	164.1	143.6	106.2	78.6	40.8	16.4	5.7	3.8	5.7	16.4
107.5°	186.6	182.6	161.0	123.5	98.3	58.5	29.8	15.6	10.1	15.6	29.8
110°	206.3	201.5	177.9	140.9	118.8	77.4	45.1	28.2	21.9	28.2	45.1



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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°	225.2	221.6	193.7	159.0	140.1	97.9	64.0	43.9	38.0	43.9	64.0
115°	239.8	237.8	211.8	175.9	159.8	121.2	84.9	62.5	55.4	62.5	84.9
117.5°	255.1	254.7	225.2	193.3	183.4	142.1	104.2	81.0	73.5	81.0	104.2
120°	274.4	271.3	243.7	210.6	205.9	164.1	125.5	102.3	94.8	102.3	125.5
122.5°	287.8	285.9	259.5	227.2	227.2	186.6	146.0	122.7	114.9	122.7	146.0
125°	300.0	299.3	271.3	243.7	250.0	207.5	168.8	145.2	136.5	145.2	168.8
127.5°	311.1	312.3	286.6	261.8	273.3	228.7	191.3	165.3	156.2	165.3	191.3
130°	320.5	324.5	301.2	278.4	295.3	252.0	211.4	185.4	179.5	185.4	211.4
132.5°	339.0	336.7	316.2	295.3	319.0	273.3	232.7	205.5	198.8	205.5	232.7
135°	348.5	349.3	329.2	309.9	341.0	294.5	252.8	226.0	219.3	226.0	252.8
137.5°	359.9	357.6	339.4	327.6	361.5	315.0	272.5	247.6	237.0	247.6	272.5
140°	369.2	368.8	353.8	343.4	383.6	335.1	293.6	268.3	258.5	268.3	293.6
142.5°	377.9	380.2	367.2	360.7	405.6	356.4	315.2	287.6	278.2	287.6	315.2
145°	383.8	388.9	380.6	383.4	426.5	381.0	334.1	306.2	295.9	306.2	334.1
147.5°	393.6	400.3	390.5	398.8	444.6	401.9	353.1	325.5	316.4	325.5	353.1
150°	407.0	410.2	404.3	420.0	463.2	425.2	372.4	344.0	334.9	344.0	372.4
152.5°	417.7	421.6	414.9	443.3	477.7	446.4	393.6	362.1	351.5	362.1	393.6
155°	428.7	430.3	425.5	465.7	493.1	467.3	410.6	382.2	372.0	382.2	410.6
157.5°	438.9	442.1	436.6	482.7	506.5	485.4	429.9	402.3	393.2	402.3	429.9
160°	450.0	450.0	453.1	501.4	517.5	500.2	450.4	424.4	411.8	424.4	450.4
162.5°	451.2	458.6	475.6	515.2	528.2	514.0	472.4	440.1	429.1	440.1	472.4
165°	468.5	475.2	500.8	527.4	536.4	526.2	499.6	466.1	453.1	466.1	499.6
167.5°	486.6	500.8	520.3	541.1	544.2	537.6	519.5	497.3	485.4	497.3	519.5
170°	515.2	528.4	537.6	547.2	551.5	547.6	532.5	522.1	513.6	522.1	532.5
172.5°	538.4	546.2	550.1	556.6	553.9	552.3	544.2	538.8	534.9	538.8	544.2
175°	552.9	554.5	559.0	557.0	559.4	555.1	555.5	557.2	541.1	557.2	555.5
177.5°	558.0	560.8	559.8	556.3	556.6	555.9	557.4	558.0	555.6	558.0	557.4
180°	559.0	559.0	559.0	559.0	559.0	559.0	559.0	559.0	559.0	559.0	559.0



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CATALOG NUMBER: MWL-2-13-17-UNV-L840-EDD

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	777.7	777.7	777.7	777.7	777.7	777.7
2.5°	774.1	772.4	774.4	777.1	776.3	775.5
5°	770.1	768.1	770.1	773.1	772.3	771.5
7.5°	763.7	762.1	764.1	765.7	765.7	764.9
10°	754.3	752.7	754.7	756.7	756.7	755.3
12.5°	742.3	740.9	742.3	744.3	744.7	744.1
15°	727.9	726.9	728.3	729.3	729.7	729.4
17.5°	713.9	712.9	713.9	713.3	713.7	714.4
20°	695.5	694.5	695.9	695.3	696.1	695.4
22.5°	675.5	675.5	675.9	676.3	675.1	674.1
25°	654.5	655.5	654.9	654.7	652.1	651.1
27.5°	631.9	632.5	632.3	630.7	627.1	623.1
30°	608.9	609.5	609.7	604.1	598.1	595.1
32.5°	582.9	585.9	583.7	576.1	567.1	563.1
35°	553.5	557.5	554.7	544.7	531.8	529.8
37.5°	525.6	531.0	526.8	508.8	495.8	496.8
40°	493.6	500.0	494.4	470.8	460.8	462.8
42.5°	459.6	471.0	460.4	433.4	428.8	430.8
45°	420.6	436.0	421.4	397.4	396.4	399.4
47.5°	380.6	402.0	381.0	363.4	366.4	371.4
50°	342.2	359.6	343.0	330.4	338.4	343.4
52.5°	306.2	312.6	307.0	301.0	312.4	315.4
55°	269.8	263.2	270.6	273.0	287.0	291.0
57.5°	232.8	220.2	233.6	245.0	262.0	264.0
60°	196.8	187.2	197.2	213.6	233.6	238.6
62.5°	162.8	158.8	163.2	183.6	205.6	208.6
65°	135.8	134.8	136.2	154.2	176.2	182.2
67.5°	112.8	113.8	112.8	128.2	147.2	157.2
70°	92.8	96.8	92.8	105.8	120.8	131.8
72.5°	75.4	79.4	75.8	85.8	97.8	110.8
75°	60.4	65.4	60.4	67.4	77.8	90.8
77.5°	48.4	52.4	48.4	51.4	65.4	77.9
80°	36.4	40.4	36.4	40.6	59.9	70.6
82.5°	25.4	27.4	25.4	39.3	61.5	69.1
85°	19.8	16.4	20.6	43.0	66.4	72.3
87.5°	17.0	4.0	22.5	49.4	75.9	78.5
90°	11.8	0.4	26.8	59.6	86.9	87.9
92.5°	5.8	6.3	33.0	71.2	98.5	100.2
95°	2.6	15.8	42.0	83.1	111.2	112.6
97.5°	4.7	28.0	55.2	94.4	122.9	124.9
100°	13.0	42.9	72.1	108.2	133.9	135.3
102.5°	24.4	59.1	88.3	124.3	147.0	153.7
105°	40.8	78.6	106.2	143.6	164.1	169.6
107.5°	58.5	98.3	123.5	161.0	182.6	186.6
110°	77.4	118.8	140.9	177.9	201.5	206.3





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	97.9	140.1	159.0	193.7	221.6	225.2
115°	121.2	159.8	175.9	211.8	237.8	239.8
117.5°	142.1	183.4	193.3	225.2	254.7	255.1
120°	164.1	205.9	210.6	243.7	271.3	274.4
122.5°	186.6	227.2	227.2	259.5	285.9	287.8
125°	207.5	250.0	243.7	271.3	299.3	300.0
127.5°	228.7	273.3	261.8	286.6	312.3	311.1
130°	252.0	295.3	278.4	301.2	324.5	320.5
132.5°	273.3	319.0	295.3	316.2	336.7	339.0
135°	294.5	341.0	309.9	329.2	349.3	348.5
137.5°	315.0	361.5	327.6	339.4	357.6	359.9
140°	335.1	383.6	343.4	353.8	368.8	369.2
142.5°	356.4	405.6	360.7	367.2	380.2	377.9
145°	381.0	426.5	383.4	380.6	388.9	383.8
147.5°	401.9	444.6	398.8	390.5	400.3	393.6
150°	425.2	463.2	420.0	404.3	410.2	407.0
152.5°	446.4	477.7	443.3	414.9	421.6	417.7
155°	467.3	493.1	465.7	425.5	430.3	428.7
157.5°	485.4	506.5	482.7	436.6	442.1	438.9
160°	500.2	517.5	501.4	453.1	450.0	450.0
162.5°	514.0	528.2	515.2	475.6	458.6	451.2
165°	526.2	536.4	527.4	500.8	475.2	468.5
167.5°	537.6	544.2	541.1	520.3	500.8	486.6
170°	547.6	551.5	547.2	537.6	528.4	515.2
172.5°	552.3	553.9	556.6	550.1	546.2	538.4
175°	555.1	559.4	557.0	559.0	554.5	552.9
177.5°	555.9	556.6	556.3	559.8	560.8	558.0
180°	559.0	559.0	559.0	559.0	559.0	559.0

(END OF REPORT)