

Scaled data based on original data using
LM-66-11 Electrical and Photometric Measurements of Single-Ended Compact
Fluorescent Lamps

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: SHAPER

Report Number: 18651

Luminaire Tested: **658-CF2/13**

Issue Date: 3/3/2020

Test Information

Test Method: LM-66-11
Report Number: 18651
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: SHAPER
Catalog Number: 658-CF2/13
Description: FLUORESCENT WALL MOUNT LUMINAIRE WITH WHITE INTERIOR AND CURVED
WHITE PLASTIC LENS
Light Source: TWO SYLVANIA 13 WATT CPFL LAMPS

CF13DS/E830. LUMEN RATING = 1600 LMS.

Ballast/Driver: -

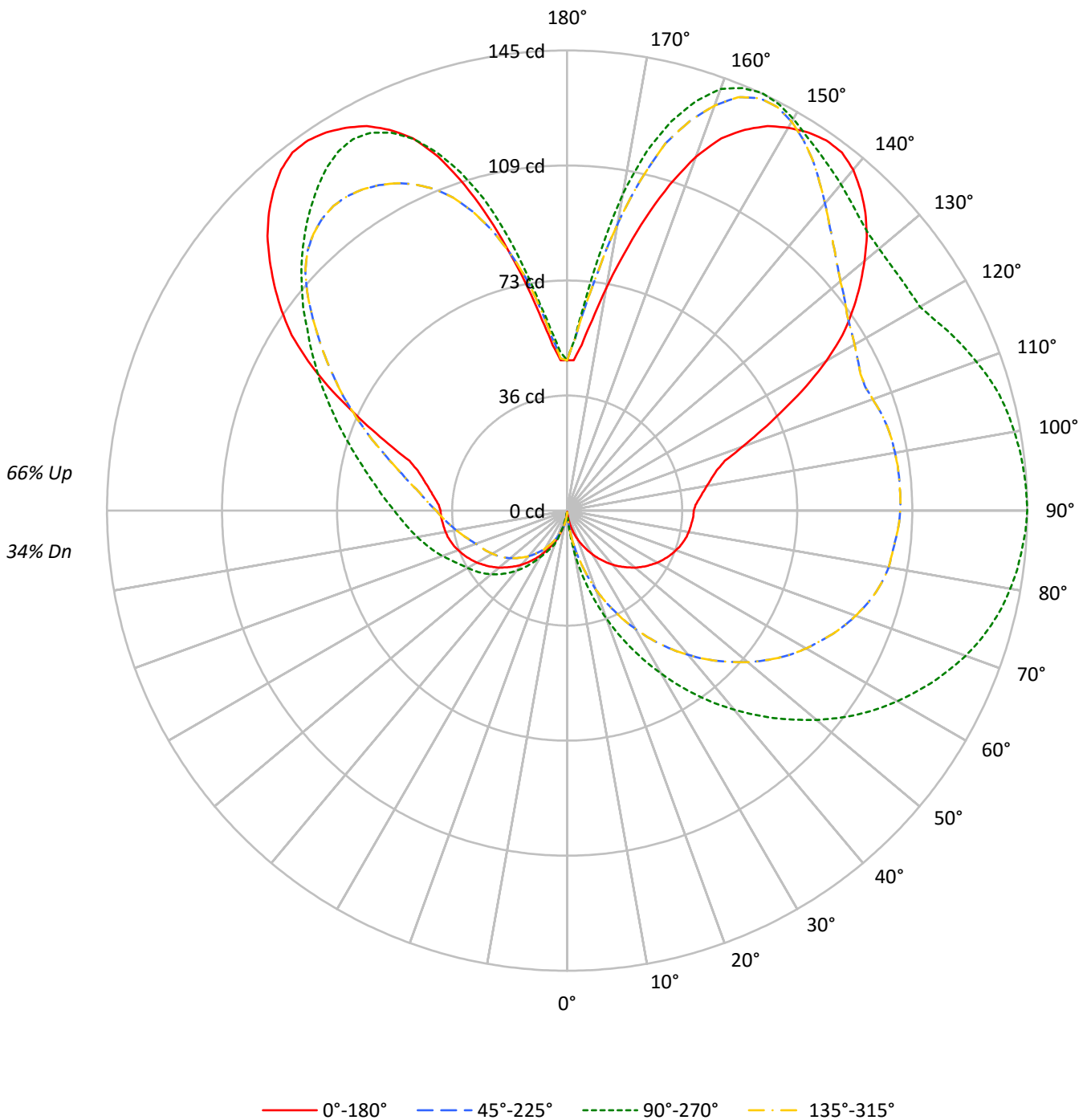
Summary

Lumens per Lamp: 1600 (1 lamp)
Luminaire Lumens: 941.9 lumens
Efficiency: 58.9%
Efficacy: 39.2 lumens/watt
Spacing Criteria (0/90/45): 9.9 / 13.51 / 10.92
Luminous Opening: Point Source (0' x 0' x 0')
CIE Type: Semi-Indirect

Input Watts (W): 24
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	61	61	61	61	55	55	55	55	44	44	44	34	34	34	24	24	24	20
1	53	49	46	43	47	44	42	39	35	33	31	26	24	23	18	17	16	12
2	47	42	37	34	42	37	34	30	29	26	24	21	19	17	14	13	11	8
3	43	36	31	27	38	32	28	24	25	22	19	18	16	14	12	10	9	6
4	39	31	26	22	34	28	23	20	22	18	15	16	13	11	10	8	7	4
5	35	28	22	18	31	25	20	16	19	15	13	14	11	9	9	7	6	3
6	32	24	19	15	28	22	17	14	17	13	11	12	10	8	8	6	5	3
7	30	22	17	13	26	19	15	12	15	12	9	11	8	6	7	5	4	2
8	27	20	15	11	24	18	13	10	14	10	8	10	7	6	6	5	3	2
9	25	18	13	10	22	16	12	9	12	9	7	9	7	5	6	4	3	1
10	24	16	12	9	21	14	10	8	11	8	6	8	6	4	5	4	2	1

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	Luminaire represents a point source (luminous area is zero).			
5°	No luminance values can be calculated.			
10°				
15°				
20°				
25°				
30°				
35°				
40°				
45°				
50°				
55°				
60°				
65°				
70°				
75°				
80°				
85°				



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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	0.3	0.0	0.0
10°-20°	3.4	0.4	0.2
20°-30°	10.4	1.1	0.6
30°-40°	20.9	2.2	1.3
40°-50°	33.6	3.6	2.1
50°-60°	47.0	5.0	2.9
60°-70°	59.2	6.3	3.7
70°-80°	69.4	7.4	4.3
80°-90°	76.1	8.1	4.8
90°-100°	80.4	8.5	5.0
100°-110°	84.5	9.0	5.3
110°-120°	89.8	9.5	5.6
120°-130°	94.4	10.0	5.9
130°-140°	93.4	9.9	5.8
140°-150°	82.6	8.8	5.2
150°-160°	60.4	6.4	3.8
160°-170°	30.0	3.2	1.9
170°-180°	6.3	0.7	0.4
0°-30°	14.1	1.5	0.9
0°-40°	35.0	3.7	2.2
0°-60°	115.5	12.3	7.2
0°-90°	320.2	34.0	20.0
90°-120°	254.7	27.0	15.9
90°-150°	525.1	55.7	32.8
90°-180°	622.0	66.0	38.9
0°-180°	941.9	100.0	58.9

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	1	1	1	1	1	
5°	1	3	1	1	1	0
15°	6	25	6	6	6	2
25°	13	48	13	14	13	6
35°	19	71	19	21	19	12
45°	25	92	25	28	25	19
55°	30	112	30	34	30	27
65°	35	127	35	39	35	35
75°	38	138	38	45	38	40
85°	40	144	40	51	40	32
90°	40	145	40	54	40	22
95°	42	144	42	59	42	35
105°	49	141	49	69	49	53
115°	75	133	75	84	75	75
125°	110	128	110	100	110	98
135°	133	130	133	118	133	102
145°	142	138	142	132	142	89
155°	132	145	132	131	132	61
165°	96	127	96	102	96	28
175°	52	67	52	57	52	6
180°	47	47	47	47	47	



TEST NUMBER: 18651
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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2.5°	0.5	0.5	0.6	0.7	0.7	0.7	0.6	0.5	0.5	0.6	0.7
5°	0.9	1.3	2.4	3.2	2.9	3.2	2.4	1.3	0.9	1.2	1.7
7.5°	1.9	3.3	5.9	7.3	8.2	7.3	5.9	3.3	1.9	2.2	2.8
10°	3.4	5.7	9.7	12.2	13.8	12.2	9.7	5.7	3.4	3.4	3.9
12.5°	4.9	8.2	13.4	17.8	19.2	17.8	13.4	8.2	4.9	4.5	5.1
15°	6.4	10.7	17.7	23.2	24.8	23.2	17.7	10.7	6.4	5.8	6.3
17.5°	8.0	13.2	22.0	28.4	30.4	28.4	22.0	13.2	8.0	6.9	7.6
20°	9.6	15.9	26.5	34.0	36.3	34.0	26.5	15.9	9.6	8.2	8.8
22.5°	11.1	18.7	30.7	39.2	42.1	39.2	30.7	18.7	11.1	9.4	10.0
25°	12.7	21.3	34.7	44.4	47.7	44.4	34.7	21.3	12.7	10.7	11.2
27.5°	14.3	24.0	39.0	50.0	53.6	50.0	39.0	24.0	14.3	11.9	12.4
30°	15.9	26.6	43.1	55.3	59.3	55.3	43.1	26.6	15.9	13.2	13.7
32.5°	17.5	29.4	47.3	60.7	65.2	60.7	47.3	29.4	17.5	14.5	15.0
35°	19.1	32.0	51.4	65.9	70.9	65.9	51.4	32.0	19.1	15.7	16.2
37.5°	20.7	34.5	55.5	71.2	76.5	71.2	55.5	34.5	20.7	17.0	17.5
40°	22.2	36.9	59.3	76.1	81.9	76.1	59.3	36.9	22.2	18.2	18.7
42.5°	23.7	39.5	63.3	81.2	87.2	81.2	63.3	39.5	23.7	19.4	19.9
45°	25.1	41.8	67.0	86.0	92.5	86.0	67.0	41.8	25.1	20.6	21.0
47.5°	26.5	44.2	70.6	90.5	97.5	90.5	70.6	44.2	26.5	21.8	22.2
50°	28.0	46.5	74.3	95.3	102.6	95.3	74.3	46.5	28.0	22.9	23.3
52.5°	29.2	48.7	77.7	99.7	107.4	99.7	77.7	48.7	29.2	23.9	24.4
55°	30.5	50.9	81.0	104.0	112.0	104.0	81.0	50.9	30.5	24.9	25.4
57.5°	31.6	52.7	84.1	107.8	116.2	107.8	84.1	52.7	31.6	25.9	26.3
60°	32.8	54.6	86.9	111.6	120.2	111.6	86.9	54.6	32.8	26.8	27.2
62.5°	33.8	56.2	89.5	114.9	123.8	114.9	89.5	56.2	33.8	27.7	28.1
65°	34.8	57.9	92.2	118.2	127.4	118.2	92.2	57.9	34.8	28.5	28.9
67.5°	35.7	59.3	94.6	121.2	130.6	121.2	94.6	59.3	35.7	29.3	29.8
70°	36.5	60.7	96.8	124.0	133.7	124.0	96.8	60.7	36.5	30.0	30.6
72.5°	37.3	61.9	98.8	126.6	136.3	126.6	98.8	61.9	37.3	30.6	31.7
75°	37.9	62.9	100.5	128.7	138.5	128.7	100.5	62.9	37.9	31.2	32.9
77.5°	38.5	63.8	101.9	130.6	140.4	130.6	101.9	63.8	38.5	31.9	34.2
80°	38.9	64.4	102.9	132.0	141.8	132.0	102.9	64.4	38.9	32.6	35.5
82.5°	39.2	65.0	103.3	133.1	143.0	133.1	103.3	65.0	39.2	33.6	36.9
85°	39.5	65.4	103.9	133.9	143.8	133.9	103.9	65.4	39.5	34.7	38.3
87.5°	39.8	65.7	104.6	134.8	144.6	134.8	104.6	65.7	39.8	35.7	39.8
90°	39.9	65.9	105.0	135.2	145.0	135.2	105.0	65.9	39.9	36.8	41.3
92.5°	40.5	66.0	105.1	135.2	144.8	135.2	105.1	66.0	40.5	38.3	43.2
95°	41.7	66.4	105.1	134.9	144.4	134.9	105.1	66.4	41.7	40.8	45.2
97.5°	43.1	66.7	105.1	134.6	143.9	134.6	105.1	66.7	43.1	44.5	47.4
100°	44.7	67.1	104.9	133.9	143.1	133.9	104.9	67.1	44.7	49.1	50.3
102.5°	46.6	67.5	104.7	133.2	142.2	133.2	104.7	67.5	46.6	54.0	53.3
105°	48.7	68.0	104.2	132.2	141.0	132.2	104.2	68.0	48.7	59.1	56.9
107.5°	52.1	68.6	103.5	130.8	139.3	130.8	103.5	68.6	52.1	64.3	60.8
110°	58.7	70.0	102.5	129.0	137.2	129.0	102.5	70.0	58.7	70.0	65.4



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 CATALOG NUMBER: 658-CF2/13

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	66.5	72.1	101.7	127.1	135.1	127.1	101.7	72.1	66.5	75.8	70.0
115°	75.3	75.4	102.0	125.3	132.9	125.3	102.0	75.4	75.3	81.9	74.9
117.5°	84.9	79.4	103.2	123.4	130.4	123.4	103.2	79.4	84.9	87.4	80.1
120°	94.3	83.7	104.6	123.0	128.4	123.0	104.6	83.7	94.3	92.6	85.1
122.5°	102.9	88.3	106.0	123.4	128.1	123.4	106.0	88.3	102.9	98.0	90.5
125°	109.8	92.8	107.7	123.8	128.0	123.8	107.7	92.8	109.8	102.7	95.8
127.5°	116.3	98.9	110.1	124.4	128.0	124.4	110.1	98.9	116.3	107.2	101.4
130°	122.3	105.6	112.4	125.3	128.3	125.3	112.4	105.6	122.3	111.4	106.9
132.5°	128.1	112.8	115.3	126.7	128.9	126.7	115.3	112.8	128.1	114.8	111.9
135°	132.9	119.8	118.6	128.8	130.3	128.8	118.6	119.8	132.9	117.5	115.7
137.5°	136.9	126.6	122.3	130.9	132.2	130.9	122.3	126.6	136.9	119.3	118.3
140°	140.2	133.1	126.4	133.4	134.2	133.4	126.4	133.1	140.2	120.3	120.1
142.5°	142.2	138.2	130.6	135.8	136.1	135.8	130.6	138.2	142.2	120.9	121.0
145°	142.4	142.2	134.9	138.7	138.1	138.7	134.9	142.2	142.4	121.2	120.9
147.5°	141.3	143.7	138.5	141.7	140.1	141.7	138.5	143.7	141.3	121.1	120.0
150°	139.3	143.0	141.5	144.4	142.5	144.4	141.5	143.0	139.3	120.5	118.4
152.5°	136.6	141.2	143.4	146.7	144.4	146.7	143.4	141.2	136.6	119.6	116.3
155°	132.4	137.4	143.4	146.8	145.2	146.8	143.4	137.4	132.4	118.0	113.4
157.5°	127.0	131.6	141.0	144.9	144.1	144.9	141.0	131.6	127.0	115.3	109.7
160°	118.6	124.3	135.8	141.1	141.4	141.1	135.8	124.3	118.6	111.0	104.9
162.5°	107.7	113.8	128.7	134.6	135.3	134.6	128.7	113.8	107.7	103.9	98.7
165°	95.5	101.6	119.8	126.3	127.0	126.3	119.8	101.6	95.5	95.3	91.4
167.5°	82.8	88.8	106.5	114.8	116.0	114.8	106.5	88.8	82.8	84.8	83.0
170°	71.2	77.0	91.9	100.6	101.4	100.6	91.9	77.0	71.2	74.0	74.2
172.5°	60.5	65.7	76.6	83.7	83.4	83.7	76.6	65.7	60.5	62.8	64.0
175°	52.3	56.8	64.0	68.0	66.7	68.0	64.0	56.8	52.3	53.6	54.8
177.5°	47.4	50.5	53.7	55.0	53.9	55.0	53.7	50.5	47.4	47.7	48.0
180°	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3



TEST NUMBER: 18651
 CATALOG NUMBER: 658-CF2/13

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	0.6	0.6	0.6	0.6	0.6	0.6
2.5°	0.8	0.7	0.8	0.7	0.6	0.5
5°	1.0	0.7	1.0	1.7	1.2	0.9
7.5°	1.9	0.7	1.9	2.8	2.2	1.9
10°	3.6	1.1	3.6	3.9	3.4	3.4
12.5°	4.8	2.5	4.8	5.1	4.5	4.9
15°	5.9	5.6	5.9	6.3	5.8	6.4
17.5°	7.1	8.7	7.1	7.6	6.9	8.0
20°	8.2	10.9	8.2	8.8	8.2	9.6
22.5°	9.5	12.4	9.5	10.0	9.4	11.1
25°	10.9	13.7	10.9	11.2	10.7	12.7
27.5°	12.6	15.3	12.6	12.4	11.9	14.3
30°	14.3	17.0	14.3	13.7	13.2	15.9
32.5°	16.1	18.9	16.1	15.0	14.5	17.5
35°	17.9	20.9	17.9	16.2	15.7	19.1
37.5°	19.6	22.9	19.6	17.5	17.0	20.7
40°	21.3	24.7	21.3	18.7	18.2	22.2
42.5°	22.9	26.5	22.9	19.9	19.4	23.7
45°	24.3	28.1	24.3	21.0	20.6	25.1
47.5°	25.7	29.7	25.7	22.2	21.8	26.5
50°	27.0	31.2	27.0	23.3	22.9	28.0
52.5°	28.3	32.6	28.3	24.4	23.9	29.2
55°	29.4	33.9	29.4	25.4	24.9	30.5
57.5°	30.4	35.0	30.4	26.3	25.9	31.6
60°	31.6	36.2	31.6	27.2	26.8	32.8
62.5°	32.4	37.3	32.4	28.1	27.7	33.8
65°	33.5	38.7	33.5	28.9	28.5	34.8
67.5°	34.8	40.2	34.8	29.8	29.3	35.7
70°	36.3	41.8	36.3	30.6	30.0	36.5
72.5°	37.7	43.4	37.7	31.7	30.6	37.3
75°	39.2	44.9	39.2	32.9	31.2	37.9
77.5°	40.7	46.4	40.7	34.2	31.9	38.5
80°	42.1	48.0	42.1	35.5	32.6	38.9
82.5°	43.6	49.5	43.6	36.9	33.6	39.2
85°	45.2	51.1	45.2	38.3	34.7	39.5
87.5°	46.8	52.7	46.8	39.8	35.7	39.8
90°	48.4	54.5	48.4	41.3	36.8	39.9
92.5°	50.4	56.5	50.4	43.2	38.3	40.5
95°	52.6	58.7	52.6	45.2	40.8	41.7
97.5°	54.9	60.9	54.9	47.4	44.5	43.1
100°	57.6	63.5	57.6	50.3	49.1	44.7
102.5°	60.6	66.2	60.6	53.3	54.0	46.6
105°	64.0	69.3	64.0	56.9	59.1	48.7
107.5°	67.6	72.5	67.6	60.8	64.3	52.1
110°	71.6	76.1	71.6	65.4	70.0	58.7



TEST NUMBER: 18651
 CATALOG NUMBER: 658-CF2/13

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	75.4	79.7	75.4	70.0	75.8	66.5
115°	79.4	83.5	79.4	74.9	81.9	75.3
117.5°	83.4	87.7	83.4	80.1	87.4	84.9
120°	87.2	91.6	87.2	85.1	92.6	94.3
122.5°	91.2	95.8	91.2	90.5	98.0	102.9
125°	95.1	100.0	95.1	95.8	102.7	109.8
127.5°	99.3	104.8	99.3	101.4	107.2	116.3
130°	103.5	109.1	103.5	106.9	111.4	122.3
132.5°	107.7	113.6	107.7	111.9	114.8	128.1
135°	111.5	117.7	111.5	115.7	117.5	132.9
137.5°	114.8	121.7	114.8	118.3	119.3	136.9
140°	117.8	125.4	117.8	120.1	120.3	140.2
142.5°	120.1	128.9	120.1	121.0	120.9	142.2
145°	122.0	132.0	122.0	120.9	121.2	142.4
147.5°	123.1	134.2	123.1	120.0	121.1	141.3
150°	123.4	135.1	123.4	118.4	120.5	139.3
152.5°	122.7	134.2	122.7	116.3	119.6	136.6
155°	120.5	131.4	120.5	113.4	118.0	132.4
157.5°	117.2	126.8	117.2	109.7	115.3	127.0
160°	112.0	120.1	112.0	104.9	111.0	118.6
162.5°	104.3	111.7	104.3	98.7	103.9	107.7
165°	95.1	101.8	95.1	91.4	95.3	95.5
167.5°	85.0	89.8	85.0	83.0	84.8	82.8
170°	74.7	77.2	74.7	74.2	74.0	71.2
172.5°	65.0	65.6	65.0	64.0	62.8	60.5
175°	56.1	56.8	56.1	54.8	53.6	52.3
177.5°	49.1	50.0	49.1	48.0	47.7	47.4
180°	47.3	47.3	47.3	47.3	47.3	47.3

(END OF REPORT)