

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: 18650A

Luminaire Tested: **642/A-CF2/13**

Issue Date: 3/3/2020

**Test Information**

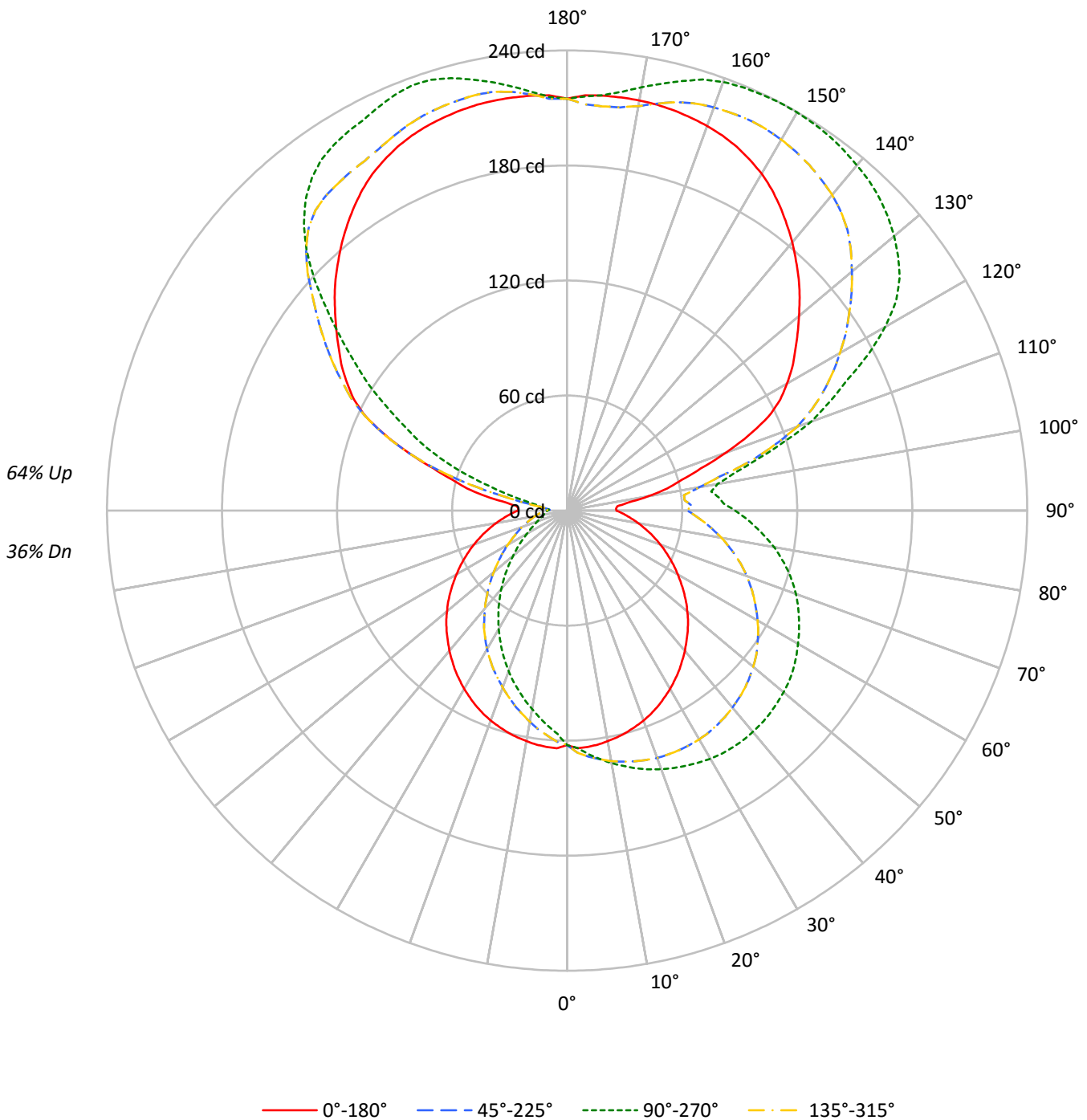
Test Method: LM-66-11  
Report Number: 18650A  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: SHAPER  
Catalog Number: 642/A-CF2/13  
Description: FLUORESCENT WALL MOUNT LUMINAIRE WITH WHITE INTERIOR AND WHITE PLASTIC BOWL LENS  
Light Source: TWO 13 WATT CPFL LAMPS. LUMEN RATING = 1600 LMS.  
  
Ballast/Driver: -

**Summary**

Lumens per Lamp: 1600 (1 lamp)  
Luminaire Lumens: 1335.7 lumens  
Efficiency: 83.5%  
Efficacy: -  
Spacing Criteria (0/90/45): 1.3 / 1.35 / 1.47  
Luminous Opening: Point Source (0' x 0' x 0')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 0  
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: 18650A  
CATALOG NUMBER: 642/A-CF2/13

### 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	87	87	87	87	78	78	78	78	63	63	63	49	49	49	36	36	36	30
1	78	74	70	67	70	66	63	60	53	51	49	41	39	38	30	29	28	23
2	70	63	58	53	63	57	53	49	46	42	39	35	33	31	25	24	22	18
3	64	55	49	44	57	50	44	40	40	36	33	31	28	25	22	20	19	15
4	58	49	42	37	52	44	38	33	35	31	27	27	24	21	20	17	16	12
5	53	43	36	31	48	39	33	28	31	27	23	24	21	18	17	15	13	10
6	49	38	32	27	44	35	29	24	28	23	20	22	18	16	16	13	12	9
7	45	35	28	23	40	31	25	21	25	21	17	20	16	14	14	12	10	8
8	42	31	25	20	37	28	23	19	23	19	15	18	15	12	13	11	9	7
9	39	28	22	18	35	26	20	16	21	17	14	16	13	11	12	10	8	6
10	36	26	20	16	32	24	18	15	19	15	12	15	12	10	11	9	7	6

**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°	11.6	0.9	0.7
10°-20°	33.7	2.5	2.1
20°-30°	52.3	3.9	3.3
30°-40°	65.5	4.9	4.1
40°-50°	72.2	5.4	4.5
50°-60°	72.5	5.4	4.5
60°-70°	67.5	5.1	4.2
70°-80°	58.6	4.4	3.7
80°-90°	46.9	3.5	2.9
90°-100°	41.6	3.1	2.6
100°-110°	76.7	5.7	4.8
110°-120°	122.7	9.2	7.7
120°-130°	145.1	10.9	9.1
130°-140°	149.5	11.2	9.3
140°-150°	133.3	10.0	8.3
150°-160°	102.2	7.6	6.4
160°-170°	63.0	4.7	3.9
170°-180°	20.8	1.6	1.3
0°-30°	97.6	7.3	6.1
0°-40°	163.1	12.2	10.2
0°-60°	307.8	23.0	19.2
0°-90°	480.8	36.0	30.1
90°-120°	241.0	18.0	15.1
90°-150°	668.9	50.1	41.8
90°-180°	855.0	64.0	53.4
0°-180°	1335.7	100.0	83.5

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	122	122	122	122	122	
5°	124	128	124	113	124	12
15°	120	139	120	97	120	34
25°	112	147	112	80	112	52
35°	102	151	102	62	102	64
45°	89	150	89	45	89	69
55°	74	144	74	30	74	67
65°	59	133	59	20	59	59
75°	44	119	44	14	44	47
85°	31	99	31	11	31	27
90°	26	88	26	11	26	14
95°	26	79	26	12	26	25
105°	62	102	62	31	62	67
115°	116	161	116	85	116	112
125°	145	212	145	136	145	130
135°	171	230	171	192	171	132
145°	194	238	194	223	194	121
155°	209	240	209	232	209	97
165°	216	232	216	234	216	61
175°	217	218	217	219	217	21
180°	215	215	215	215	215	



TEST NUMBER: 18650A  
 CATALOG NUMBER: 642/A-CF2/13

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	122.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3	122.3
2.5°	124.1	126.4	126.5	122.2	123.9	122.2	126.5	126.4	124.1	123.9	120.7
5°	123.7	127.4	128.9	125.3	127.5	125.3	128.9	127.4	123.7	122.0	117.8
7.5°	123.1	128.1	130.8	128.1	130.7	128.1	130.8	128.1	123.1	120.2	115.1
10°	122.1	128.5	132.7	130.7	133.7	130.7	132.7	128.5	122.1	118.2	111.8
12.5°	121.1	128.6	134.1	133.1	136.5	133.1	134.1	128.6	121.1	116.0	108.6
15°	119.7	128.8	135.4	135.2	139.2	135.2	135.4	128.8	119.7	113.6	105.3
17.5°	118.2	128.5	136.4	137.1	141.5	137.1	136.4	128.5	118.2	111.0	101.8
20°	116.5	128.0	137.3	138.8	143.5	138.8	137.3	128.0	116.5	108.3	98.2
22.5°	114.6	127.2	137.7	140.1	145.3	140.1	137.7	127.2	114.6	105.4	94.6
25°	112.4	126.3	137.9	141.2	146.8	141.2	137.9	126.3	112.4	102.1	91.1
27.5°	109.9	124.9	137.9	142.2	148.2	142.2	137.9	124.9	109.9	99.0	87.3
30°	107.4	123.5	137.8	142.9	149.4	142.9	137.8	123.5	107.4	95.8	83.5
32.5°	104.6	121.8	137.3	143.4	150.3	143.4	137.3	121.8	104.6	92.2	79.4
35°	101.8	119.8	136.5	143.6	150.7	143.6	136.5	119.8	101.8	88.7	75.5
37.5°	98.6	117.7	135.4	143.4	150.9	143.4	135.4	117.7	98.6	85.0	71.0
40°	95.5	115.5	134.1	142.9	150.7	142.9	134.1	115.5	95.5	81.1	66.7
42.5°	92.1	113.0	132.7	142.3	150.3	142.3	132.7	113.0	92.1	77.0	62.4
45°	88.9	110.6	131.0	141.2	149.6	141.2	131.0	110.6	88.9	73.0	58.2
47.5°	85.5	107.9	129.0	140.0	148.5	140.0	129.0	107.9	85.5	69.0	54.1
50°	81.8	104.9	126.7	138.6	147.4	138.6	126.7	104.9	81.8	65.2	50.0
52.5°	78.2	101.8	124.3	136.9	146.0	136.9	124.3	101.8	78.2	61.2	46.1
55°	74.3	98.2	121.2	134.6	144.0	134.6	121.2	98.2	74.3	57.4	42.5
57.5°	70.5	94.7	118.2	132.2	141.7	132.2	118.2	94.7	70.5	53.6	39.0
60°	66.6	90.9	114.7	129.3	139.0	129.3	114.7	90.9	66.6	49.8	35.8
62.5°	62.9	87.2	111.1	126.3	136.4	126.3	111.1	87.2	62.9	46.3	32.7
65°	59.1	83.3	107.5	123.0	133.4	123.0	107.5	83.3	59.1	42.9	29.8
67.5°	55.4	79.4	103.7	119.6	130.4	119.6	103.7	79.4	55.4	39.7	27.3
70°	51.7	75.5	99.7	116.1	127.0	116.1	99.7	75.5	51.7	36.6	25.0
72.5°	48.0	71.4	95.5	112.0	123.1	112.0	95.5	71.4	48.0	33.6	22.7
75°	44.5	67.2	91.0	107.9	119.0	107.9	91.0	67.2	44.5	30.8	20.6
77.5°	40.9	63.1	86.4	103.2	114.3	103.2	86.4	63.1	40.9	28.0	18.7
80°	37.6	58.9	81.7	98.5	109.6	98.5	81.7	58.9	37.6	25.5	17.2
82.5°	34.3	54.7	76.8	93.4	104.2	93.4	76.8	54.7	34.3	23.0	15.4
85°	31.3	50.6	72.2	88.5	98.7	88.5	72.2	50.6	31.3	20.9	14.1
87.5°	28.4	46.7	67.3	83.2	93.3	83.2	67.3	46.7	28.4	18.8	12.8
90°	25.7	42.9	62.6	78.0	87.6	78.0	62.6	42.9	25.7	17.2	12.1
92.5°	25.5	44.8	64.7	77.7	81.8	77.7	64.7	44.8	25.5	13.1	9.0
95°	26.3	43.0	61.5	74.7	79.3	74.7	61.5	43.0	26.3	14.0	10.4
97.5°	32.0	48.4	61.5	71.6	75.8	71.6	61.5	48.4	32.0	22.9	12.9
100°	43.0	58.2	69.9	76.5	79.6	76.5	69.9	58.2	43.0	43.8	20.5
102.5°	53.5	71.8	81.0	86.5	88.8	86.5	81.0	71.8	53.5	65.3	32.9
105°	61.9	86.3	98.5	101.2	102.0	101.2	98.5	86.3	61.9	79.6	52.3
107.5°	73.0	97.6	113.1	119.4	118.3	119.4	113.1	97.6	73.0	88.8	71.1
110°	88.0	108.0	127.5	135.9	135.2	135.9	127.5	108.0	88.0	99.0	88.4



TEST NUMBER: 18650A  
 CATALOG NUMBER: 642/A-CF2/13

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	102.5	117.1	138.3	148.3	148.1	148.3	138.3	117.1	102.5	106.9	102.7
115°	115.9	125.3	147.7	159.0	161.1	159.0	147.7	125.3	115.9	114.6	116.0
117.5°	125.3	133.2	156.3	170.9	177.4	170.9	156.3	133.2	125.3	122.8	126.9
120°	132.4	140.9	164.3	180.2	191.5	180.2	164.3	140.9	132.4	130.7	136.0
122.5°	139.3	148.2	172.4	189.3	203.5	189.3	172.4	148.2	139.3	139.4	145.5
125°	145.2	155.3	179.6	196.7	211.7	196.7	179.6	155.3	145.2	147.4	154.5
127.5°	151.5	163.0	187.0	203.2	217.6	203.2	187.0	163.0	151.5	155.6	163.8
130°	157.8	169.9	193.9	208.6	222.6	208.6	193.9	169.9	157.8	162.8	173.2
132.5°	164.5	175.5	200.7	214.1	226.9	214.1	200.7	175.5	164.5	169.9	183.6
135°	170.8	180.5	206.8	219.8	230.4	219.8	206.8	180.5	170.8	176.1	192.6
137.5°	176.7	184.8	211.4	224.4	233.2	224.4	211.4	184.8	176.7	181.5	199.7
140°	182.7	188.9	215.0	227.5	235.1	227.5	215.0	188.9	182.7	186.7	204.3
142.5°	188.2	192.5	217.7	229.8	236.9	229.8	217.7	192.5	188.2	190.9	206.9
145°	193.6	196.0	220.1	232.0	238.4	232.0	220.1	196.0	193.6	195.2	208.3
147.5°	198.6	199.1	222.0	234.1	239.3	234.1	222.0	199.1	198.6	199.4	209.7
150°	202.9	201.8	223.4	235.1	239.8	235.1	223.4	201.8	202.9	203.6	210.8
152.5°	206.3	204.1	224.4	236.2	239.9	236.2	224.4	204.1	206.3	207.8	212.7
155°	209.3	206.0	224.8	236.8	239.5	236.8	224.8	206.0	209.3	211.4	215.1
157.5°	211.7	207.9	224.4	236.6	239.0	236.6	224.4	207.9	211.7	214.2	217.5
160°	213.5	209.2	223.8	235.8	237.9	235.8	223.8	209.2	213.5	216.7	219.3
162.5°	214.8	209.7	222.6	234.5	235.7	234.5	222.6	209.7	214.8	218.5	220.5
165°	216.0	209.3	220.5	232.0	231.9	232.0	220.5	209.3	216.0	219.7	221.3
167.5°	216.8	208.6	217.4	227.4	228.0	227.4	217.4	208.6	216.8	220.5	222.0
170°	217.2	208.1	214.2	222.7	224.2	222.7	214.2	208.1	217.2	220.3	221.8
172.5°	217.3	208.4	212.1	218.8	220.3	218.8	212.1	208.4	217.3	219.1	220.3
175°	217.2	209.3	211.6	216.9	217.5	216.9	211.6	209.3	217.2	217.2	217.9
177.5°	216.8	210.4	212.1	216.3	216.2	216.3	212.1	210.4	216.8	215.5	215.0
180°	214.8	214.8	214.8	214.8	214.8	214.8	214.8	214.8	214.8	214.8	214.8



TEST NUMBER: 18650A  
 CATALOG NUMBER: 642/A-CF2/13

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	122.3	122.3	122.3	122.3	122.3	122.3
2.5°	115.7	116.6	115.7	120.7	123.9	124.1
5°	112.2	112.9	112.2	117.8	122.0	123.7
7.5°	108.8	109.1	108.8	115.1	120.2	123.1
10°	105.0	105.1	105.0	111.8	118.2	122.1
12.5°	101.3	101.4	101.3	108.6	116.0	121.1
15°	97.4	97.3	97.4	105.3	113.6	119.7
17.5°	93.8	93.4	93.8	101.8	111.0	118.2
20°	89.7	89.1	89.7	98.2	108.3	116.5
22.5°	85.7	84.8	85.7	94.6	105.4	114.6
25°	81.6	80.4	81.6	91.1	102.1	112.4
27.5°	77.2	75.8	77.2	87.3	99.0	109.9
30°	73.0	71.3	73.0	83.5	95.8	107.4
32.5°	68.7	66.7	68.7	79.4	92.2	104.6
35°	64.3	62.4	64.3	75.5	88.7	101.8
37.5°	60.0	57.8	60.0	71.0	85.0	98.6
40°	55.8	53.5	55.8	66.7	81.1	95.5
42.5°	51.4	49.0	51.4	62.4	77.0	92.1
45°	47.2	44.9	47.2	58.2	73.0	88.9
47.5°	43.2	40.8	43.2	54.1	69.0	85.5
50°	39.4	36.9	39.4	50.0	65.2	81.8
52.5°	35.8	33.4	35.8	46.1	61.2	78.2
55°	32.6	30.1	32.6	42.5	57.4	74.3
57.5°	29.6	27.0	29.6	39.0	53.6	70.5
60°	26.7	24.3	26.7	35.8	49.8	66.6
62.5°	24.1	22.0	24.1	32.7	46.3	62.9
65°	22.0	19.8	22.0	29.8	42.9	59.1
67.5°	19.9	18.1	19.9	27.3	39.7	55.4
70°	18.2	16.5	18.2	25.0	36.6	51.7
72.5°	16.7	15.2	16.7	22.7	33.6	48.0
75°	15.2	14.1	15.2	20.6	30.8	44.5
77.5°	14.0	13.2	14.0	18.7	28.0	40.9
80°	13.1	12.4	13.1	17.2	25.5	37.6
82.5°	12.1	11.7	12.1	15.4	23.0	34.3
85°	11.2	11.1	11.2	14.1	20.9	31.3
87.5°	10.5	10.5	10.5	12.8	18.8	28.4
90°	10.2	10.6	10.2	12.1	17.2	25.7
92.5°	9.3	9.4	9.3	9.0	13.1	25.5
95°	11.2	11.5	11.2	10.4	14.0	26.3
97.5°	13.3	13.4	13.3	12.9	22.9	32.0
100°	15.8	15.6	15.8	20.5	43.8	43.0
102.5°	21.1	20.6	21.1	32.9	65.3	53.5
105°	32.5	30.7	32.5	52.3	79.6	61.9
107.5°	47.4	42.7	47.4	71.1	88.8	73.0
110°	64.6	57.7	64.6	88.4	99.0	88.0





TEST NUMBER: 18650A  
 CATALOG NUMBER: 642/A-CF2/13

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	80.7	71.8	80.7	102.7	106.9	102.5
115°	94.4	84.7	94.4	116.0	114.6	115.9
117.5°	107.5	96.0	107.5	126.9	122.8	125.3
120°	122.5	109.0	122.5	136.0	130.7	132.4
122.5°	134.2	123.0	134.2	145.5	139.4	139.3
125°	145.1	135.6	145.1	154.5	147.4	145.2
127.5°	157.0	149.3	157.0	163.8	155.6	151.5
130°	168.7	163.7	168.7	173.2	162.8	157.8
132.5°	182.5	178.9	182.5	183.6	169.9	164.5
135°	196.3	192.2	196.3	192.6	176.1	170.8
137.5°	208.4	203.2	208.4	199.7	181.5	176.7
140°	217.2	212.2	217.2	204.3	186.7	182.7
142.5°	222.8	218.7	222.8	206.9	190.9	188.2
145°	226.1	223.4	226.1	208.3	195.2	193.6
147.5°	227.8	226.3	227.8	209.7	199.4	198.6
150°	228.3	228.3	228.3	210.8	203.6	202.9
152.5°	228.9	229.8	228.9	212.7	207.8	206.3
155°	230.4	232.4	230.4	215.1	211.4	209.3
157.5°	231.4	234.7	231.4	217.5	214.2	211.7
160°	231.4	236.1	231.4	219.3	216.7	213.5
162.5°	230.6	235.6	230.6	220.5	218.5	214.8
165°	229.5	233.5	229.5	221.3	219.7	216.0
167.5°	228.3	230.3	228.3	222.0	220.5	216.8
170°	227.2	226.9	227.2	221.8	220.3	217.2
172.5°	225.0	223.2	225.0	220.3	219.1	217.3
175°	221.7	219.4	221.7	217.9	217.2	217.2
177.5°	218.6	216.0	218.6	215.0	215.5	216.8
180°	214.8	214.8	214.8	214.8	214.8	214.8

(END OF REPORT)