

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: 16791A

Luminaire Tested: **648-CF2/13-120SSB-PB**

Issue Date: 3/3/2020

**Test Information**

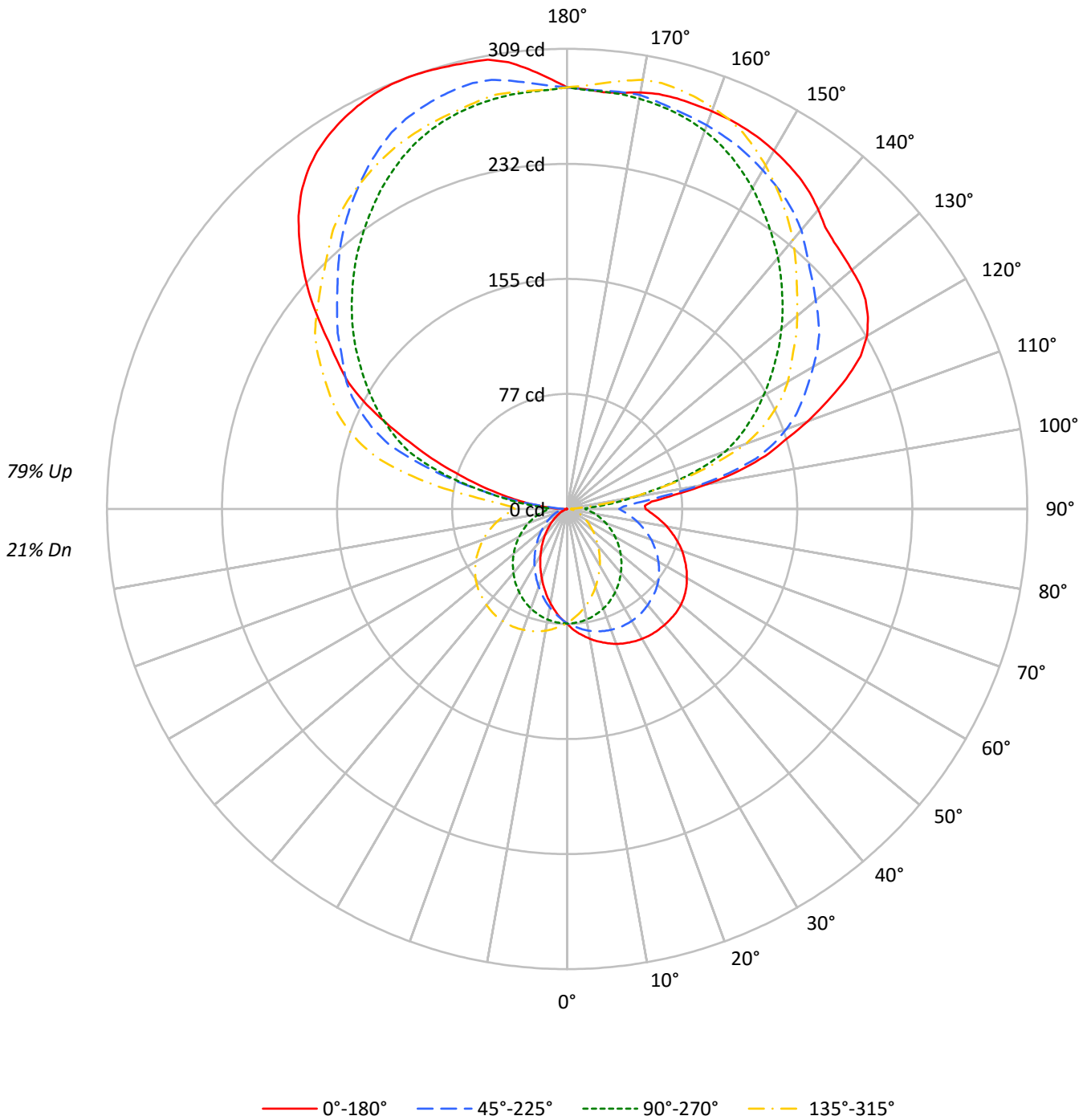
Test Method: LM-66-11  
Report Number: 16791A  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: SHAPER  
Catalog Number: 648-CF2/13-120SSB-PB  
Description: WALL SCONCE LUMINAIRE WITH WHITE INTERIOR AND WHITE PLASTIC BOWL  
LENS WITH OPEN TOP  
Light Source: TWO13 WATT CPFL LAMPS. LUMEN RATING = 1800 LMS.  
  
Ballast/Driver: -

**Summary**

Lumens per Lamp: 1800 (1 lamp)  
Luminaire Lumens: 1319.6 lumens  
Efficiency: 73.3%  
Efficacy: -  
Spacing Criteria (0/90/45): 1.32 / 1.25 / 1.43  
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: 16791A  
CATALOG NUMBER: 648-CF2/13-120SSB-PB

### Luminous Intensity Polar Plot





TEST NUMBER: 16791A  
 CATALOG NUMBER: 648-CF2/13-120SSB-PB

**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	73	73	73	73	65	65	65	65	49	49	49	35	35	35	22	22	22	15
1	66	63	60	57	59	56	53	51	42	41	39	30	29	28	18	18	17	12
2	60	55	50	46	53	48	45	41	37	34	32	26	24	23	16	15	14	9
3	55	48	42	38	48	42	38	34	32	29	26	22	21	19	14	13	12	8
4	50	42	36	32	44	37	32	29	28	25	22	20	18	16	12	11	10	6
5	46	37	31	27	40	33	28	24	25	22	19	18	15	14	11	9	8	5
6	42	33	27	23	37	30	25	21	22	19	16	16	14	12	10	8	7	5
7	39	30	24	20	34	27	22	18	20	17	14	14	12	10	9	7	6	4
8	36	27	21	18	31	24	19	16	18	15	12	13	11	9	8	7	6	4
9	33	24	19	16	29	22	17	14	17	13	11	12	10	8	7	6	5	3
10	31	22	17	14	27	20	15	12	15	12	10	11	9	7	7	6	5	3

**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°				



TEST NUMBER: 16791A  
 CATALOG NUMBER: 648-CF2/13-120SSB-PB

**ZONAL LUMENS:**

Zone	Lumens	% Fixture	% Lamp
0°-10°	7.3	0.5	0.4
10°-20°	20.8	1.6	1.2
20°-30°	31.7	2.4	1.8
30°-40°	39.0	3.0	2.2
40°-50°	42.4	3.2	2.4
50°-60°	42.1	3.2	2.3
60°-70°	38.3	2.9	2.1
70°-80°	32.0	2.4	1.8
80°-90°	24.4	1.8	1.4
90°-100°	36.8	2.8	2.0
100°-110°	104.8	7.9	5.8
110°-120°	154.7	11.7	8.6
120°-130°	175.1	13.3	9.7
130°-140°	175.0	13.3	9.7
140°-150°	159.9	12.1	8.9
150°-160°	127.2	9.6	7.1
160°-170°	80.9	6.1	4.5
170°-180°	27.3	2.1	1.5
0°-30°	59.8	4.5	3.3
0°-40°	98.8	7.5	5.5
0°-60°	183.3	13.9	10.2
0°-90°	277.9	21.1	15.4
90°-120°	296.3	22.5	16.5
90°-150°	806.3	61.1	44.8
90°-180°	1042.0	79.0	57.9
0°-180°	1319.6	100.0	73.3

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	77	77	77	77	77	
5°	84	76	71	76	84	8
15°	93	74	57	74	93	26
25°	99	68	43	68	99	46
35°	102	61	29	61	102	64
45°	101	52	18	52	101	78
55°	97	42	9	42	97	87
65°	88	32	4	32	88	87
75°	75	23	1	23	75	79
85°	60	15	0	15	60	51
90°	53	12	0	12	53	29
95°	57	20	13	20	57	55
105°	138	80	60	80	138	143
115°	207	134	131	134	207	203
125°	245	170	195	170	245	218
135°	254	204	254	204	254	197
145°	272	235	293	235	272	170
155°	282	261	307	261	282	130
165°	285	276	308	276	285	81
175°	281	281	296	281	281	27
180°	283	283	283	283	283	



TEST NUMBER: 16791A  
 CATALOG NUMBER: 648-CF2/13-120SSB-PB

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9	76.9
2.5°	80.6	79.2	78.3	77.6	76.8	75.2	74.4	73.9	74.5	73.9	74.4
5°	83.5	81.7	80.0	78.3	76.5	73.9	72.1	70.9	71.3	70.9	72.1
7.5°	86.0	84.1	81.6	78.8	76.0	72.5	69.7	67.8	67.8	67.8	69.7
10°	88.6	86.1	83.0	79.1	75.4	70.9	67.1	64.5	64.3	64.5	67.1
12.5°	90.8	88.0	84.1	79.3	74.6	69.2	64.5	61.4	60.8	61.4	64.5
15°	92.8	89.8	85.0	79.2	73.5	67.3	61.5	57.9	57.0	57.9	61.5
17.5°	94.7	91.3	85.8	79.0	72.4	65.3	58.7	54.4	53.4	54.4	58.7
20°	96.4	92.6	86.3	78.6	71.1	63.1	55.7	50.9	49.6	50.9	55.7
22.5°	97.8	93.7	86.8	78.0	69.7	61.0	52.7	47.4	46.1	47.4	52.7
25°	98.9	94.5	87.0	77.3	68.1	58.6	49.7	44.1	42.6	44.1	49.7
27.5°	99.9	95.2	87.0	76.4	66.3	56.1	46.6	40.7	39.0	40.7	46.6
30°	100.7	95.6	86.8	75.3	64.5	53.7	43.8	37.5	35.7	37.5	43.8
32.5°	101.3	96.1	86.5	74.2	62.5	51.2	40.8	34.4	32.4	34.4	40.8
35°	101.6	96.1	86.0	72.8	60.6	48.6	38.0	31.4	29.4	31.4	38.0
37.5°	101.7	95.9	85.1	71.3	58.3	46.0	35.1	28.3	26.2	28.3	35.1
40°	101.7	95.6	84.2	69.6	56.1	43.5	32.4	25.6	23.5	25.6	32.4
42.5°	101.5	95.2	83.0	67.8	53.8	40.8	29.6	22.8	20.5	22.8	29.6
45°	101.2	94.5	81.9	66.0	51.5	38.3	27.1	20.3	17.9	20.3	27.1
47.5°	100.7	93.7	80.7	64.1	49.3	36.0	24.7	17.9	15.4	17.9	24.7
50°	99.8	92.6	79.1	62.1	46.9	33.5	22.3	15.5	13.0	15.5	22.3
52.5°	98.6	91.2	77.5	60.0	44.5	31.3	20.1	13.5	11.0	13.5	20.1
55°	97.0	89.5	75.3	57.7	42.0	28.9	18.1	11.4	9.0	11.4	18.1
57.5°	95.1	87.6	73.1	55.4	39.6	26.8	16.1	9.8	7.4	9.8	16.1
60°	92.8	85.2	70.8	52.8	37.1	24.5	14.4	8.3	6.0	8.3	14.4
62.5°	90.5	82.7	68.3	50.2	34.7	22.4	12.7	7.0	4.9	7.0	12.7
65°	87.8	80.2	65.5	47.6	32.3	20.5	11.2	5.8	3.7	5.8	11.2
67.5°	85.0	77.4	62.8	45.0	29.9	18.6	9.8	4.9	2.9	4.9	9.8
70°	82.2	74.6	60.1	42.3	27.6	16.8	8.6	3.9	2.1	3.9	8.6
72.5°	78.8	71.3	56.9	39.6	25.2	15.0	7.4	3.1	1.5	3.1	7.4
75°	75.3	67.8	53.9	36.9	23.0	13.3	6.3	2.4	0.9	2.4	6.3
77.5°	71.6	64.3	50.6	34.2	20.9	11.9	5.4	1.9	0.0	1.9	5.4
80°	68.0	60.8	47.6	31.5	19.0	10.7	4.7	1.4	0.3	1.4	4.7
82.5°	64.0	57.2	44.2	28.9	17.0	9.3	3.9	1.1	0.0	1.1	3.9
85°	60.1	53.5	41.1	26.4	15.2	8.2	3.3	0.0	0.0	0.0	3.3
87.5°	56.1	49.8	37.9	23.8	13.5	7.0	2.7	0.0	0.0	0.0	2.7
90°	52.7	46.7	35.0	21.6	12.1	6.4	3.1	0.0	0.0	0.0	3.1
92.5°	52.2	48.2	37.9	24.6	12.6	5.2	2.6	5.5	8.1	5.5	2.6
95°	56.9	54.7	47.0	34.7	19.7	20.1	8.0	10.2	13.2	10.2	8.0
97.5°	72.5	71.7	64.1	50.1	32.3	45.6	20.9	21.1	22.9	21.1	20.9
100°	95.0	96.8	88.8	70.4	45.0	71.1	41.6	34.3	33.8	34.3	41.6
102.5°	118.4	120.0	111.1	88.4	60.8	87.0	62.7	49.4	45.6	49.4	62.7
105°	137.9	141.7	131.6	104.0	80.5	98.9	84.7	65.5	60.1	65.5	84.7
107.5°	153.1	160.0	145.2	115.4	98.0	108.7	107.0	81.3	75.4	81.3	107.0
110°	171.7	175.8	156.7	126.7	113.4	118.7	127.7	98.9	93.6	98.9	127.7



TEST NUMBER: 16791A  
 CATALOG NUMBER: 648-CF2/13-120SSB-PB

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
112.5°	189.1	189.9	166.6	137.1	124.2	128.3	141.2	118.1	111.0	118.1	141.2
115°	206.8	200.9	174.7	146.4	133.8	137.9	152.2	138.7	131.2	138.7	152.2
117.5°	222.2	210.2	182.5	157.0	143.4	147.3	162.7	157.8	151.8	157.8	162.7
120°	232.5	218.0	190.8	167.3	152.2	155.3	171.2	171.9	169.5	171.9	171.2
122.5°	239.5	225.8	199.3	177.3	161.3	163.0	178.0	184.5	182.2	184.5	178.0
125°	244.7	230.8	206.7	186.2	170.0	171.1	185.4	196.1	195.4	196.1	185.4
127.5°	247.9	233.9	212.4	194.3	179.2	180.4	194.2	207.6	210.9	207.6	194.2
130°	249.6	236.6	217.9	202.2	187.8	188.4	201.6	216.7	226.5	216.7	201.6
132.5°	251.5	239.9	223.9	210.3	196.2	196.1	209.5	226.8	240.7	226.8	209.5
135°	253.5	243.6	230.0	218.1	204.2	203.9	217.9	237.7	254.2	237.7	217.9
137.5°	256.6	248.7	237.0	225.5	212.3	211.3	227.0	248.3	267.0	248.3	227.0
140°	262.3	255.5	244.6	233.0	220.3	218.9	235.9	258.0	277.7	258.0	235.9
142.5°	267.7	262.0	250.3	239.2	227.5	226.0	244.0	266.6	286.2	266.6	244.0
145°	271.8	267.2	255.0	245.0	234.8	233.5	251.7	274.7	292.9	274.7	251.7
147.5°	275.0	270.8	258.9	250.3	241.8	240.9	259.1	281.1	297.8	281.1	259.1
150°	277.9	274.2	262.7	255.6	248.9	248.5	266.4	287.2	301.9	287.2	266.4
152.5°	280.3	277.4	266.2	260.1	255.0	255.4	273.0	292.3	304.9	292.3	273.0
155°	282.1	280.1	269.5	264.4	260.9	262.0	279.0	296.7	307.3	296.7	279.0
157.5°	283.4	282.1	271.9	268.1	266.0	267.8	283.4	299.6	308.6	299.6	283.4
160°	284.2	283.4	274.2	271.6	270.2	273.0	286.6	301.5	309.0	301.5	286.6
162.5°	284.8	283.4	276.0	274.9	273.6	277.7	289.4	302.2	308.6	302.2	289.4
165°	285.4	283.1	277.8	278.0	276.2	281.2	291.5	302.6	307.8	302.6	291.5
167.5°	285.3	283.0	280.1	280.7	278.2	282.8	292.9	302.6	307.1	302.6	292.9
170°	284.0	283.9	282.3	281.9	279.7	283.2	292.6	301.3	306.4	301.3	292.6
172.5°	281.8	283.3	282.3	282.5	280.8	283.0	290.0	297.1	302.6	297.1	290.0
175°	280.9	282.4	281.9	282.6	281.3	282.8	287.1	291.7	296.5	291.7	287.1
177.5°	282.1	282.8	281.8	282.6	281.6	282.6	284.5	286.4	289.7	286.4	284.5
180°	283.1	283.1	283.1	283.1	283.1	283.1	283.1	283.1	283.1	283.1	283.1



TEST NUMBER: 16791A

CATALOG NUMBER: 648-CF2/13-120SSB-PB

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	76.9	76.9	76.9	76.9	76.9	76.9
2.5°	75.2	76.8	77.6	78.3	79.2	80.6
5°	73.9	76.5	78.3	80.0	81.7	83.5
7.5°	72.5	76.0	78.8	81.6	84.1	86.0
10°	70.9	75.4	79.1	83.0	86.1	88.6
12.5°	69.2	74.6	79.3	84.1	88.0	90.8
15°	67.3	73.5	79.2	85.0	89.8	92.8
17.5°	65.3	72.4	79.0	85.8	91.3	94.7
20°	63.1	71.1	78.6	86.3	92.6	96.4
22.5°	61.0	69.7	78.0	86.8	93.7	97.8
25°	58.6	68.1	77.3	87.0	94.5	98.9
27.5°	56.1	66.3	76.4	87.0	95.2	99.9
30°	53.7	64.5	75.3	86.8	95.6	100.7
32.5°	51.2	62.5	74.2	86.5	96.1	101.3
35°	48.6	60.6	72.8	86.0	96.1	101.6
37.5°	46.0	58.3	71.3	85.1	95.9	101.7
40°	43.5	56.1	69.6	84.2	95.6	101.7
42.5°	40.8	53.8	67.8	83.0	95.2	101.5
45°	38.3	51.5	66.0	81.9	94.5	101.2
47.5°	36.0	49.3	64.1	80.7	93.7	100.7
50°	33.5	46.9	62.1	79.1	92.6	99.8
52.5°	31.3	44.5	60.0	77.5	91.2	98.6
55°	28.9	42.0	57.7	75.3	89.5	97.0
57.5°	26.8	39.6	55.4	73.1	87.6	95.1
60°	24.5	37.1	52.8	70.8	85.2	92.8
62.5°	22.4	34.7	50.2	68.3	82.7	90.5
65°	20.5	32.3	47.6	65.5	80.2	87.8
67.5°	18.6	29.9	45.0	62.8	77.4	85.0
70°	16.8	27.6	42.3	60.1	74.6	82.2
72.5°	15.0	25.2	39.6	56.9	71.3	78.8
75°	13.3	23.0	36.9	53.9	67.8	75.3
77.5°	11.9	20.9	34.2	50.6	64.3	71.6
80°	10.7	19.0	31.5	47.6	60.8	68.0
82.5°	9.3	17.0	28.9	44.2	57.2	64.0
85°	8.2	15.2	26.4	41.1	53.5	60.1
87.5°	7.0	13.5	23.8	37.9	49.8	56.1
90°	6.4	12.1	21.6	35.0	46.7	52.7
92.5°	5.2	12.6	24.6	37.9	48.2	52.2
95°	20.1	19.7	34.7	47.0	54.7	56.9
97.5°	45.6	32.3	50.1	64.1	71.7	72.5
100°	71.1	45.0	70.4	88.8	96.8	95.0
102.5°	87.0	60.8	88.4	111.1	120.0	118.4
105°	98.9	80.5	104.0	131.6	141.7	137.9
107.5°	108.7	98.0	115.4	145.2	160.0	153.1
110°	118.7	113.4	126.7	156.7	175.8	171.7





TEST NUMBER: 16791A

CATALOG NUMBER: 648-CF2/13-120SSB-PB

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	128.3	124.2	137.1	166.6	189.9	189.1
115°	137.9	133.8	146.4	174.7	200.9	206.8
117.5°	147.3	143.4	157.0	182.5	210.2	222.2
120°	155.3	152.2	167.3	190.8	218.0	232.5
122.5°	163.0	161.3	177.3	199.3	225.8	239.5
125°	171.1	170.0	186.2	206.7	230.8	244.7
127.5°	180.4	179.2	194.3	212.4	233.9	247.9
130°	188.4	187.8	202.2	217.9	236.6	249.6
132.5°	196.1	196.2	210.3	223.9	239.9	251.5
135°	203.9	204.2	218.1	230.0	243.6	253.5
137.5°	211.3	212.3	225.5	237.0	248.7	256.6
140°	218.9	220.3	233.0	244.6	255.5	262.3
142.5°	226.0	227.5	239.2	250.3	262.0	267.7
145°	233.5	234.8	245.0	255.0	267.2	271.8
147.5°	240.9	241.8	250.3	258.9	270.8	275.0
150°	248.5	248.9	255.6	262.7	274.2	277.9
152.5°	255.4	255.0	260.1	266.2	277.4	280.3
155°	262.0	260.9	264.4	269.5	280.1	282.1
157.5°	267.8	266.0	268.1	271.9	282.1	283.4
160°	273.0	270.2	271.6	274.2	283.4	284.2
162.5°	277.7	273.6	274.9	276.0	283.4	284.8
165°	281.2	276.2	278.0	277.8	283.1	285.4
167.5°	282.8	278.2	280.7	280.1	283.0	285.3
170°	283.2	279.7	281.9	282.3	283.9	284.0
172.5°	283.0	280.8	282.5	282.3	283.3	281.8
175°	282.8	281.3	282.6	281.9	282.4	280.9
177.5°	282.6	281.6	282.6	281.8	282.8	282.1
180°	283.1	283.1	283.1	283.1	283.1	283.1

(END OF REPORT)