

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: 20061

Luminaire Tested: **698-RD-CF2/13**

Issue Date: 3/3/2020

Test Information

Test Method: LM-66-11
Report Number: 20061
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: SHAPER
Catalog Number: 698-RD-CF2/13
Description: INTERIOR WALL MOUNT LUMINAIRE WITH WHITE INTERIOR AND WHITE PLASTIC LENS
Light Source: TWO SYLVANIA 13 WATT CPFL LAMPS

CF13DS/E/830. LUMEN RATING = 1600 LMS.

Ballast/Driver: -

Summary

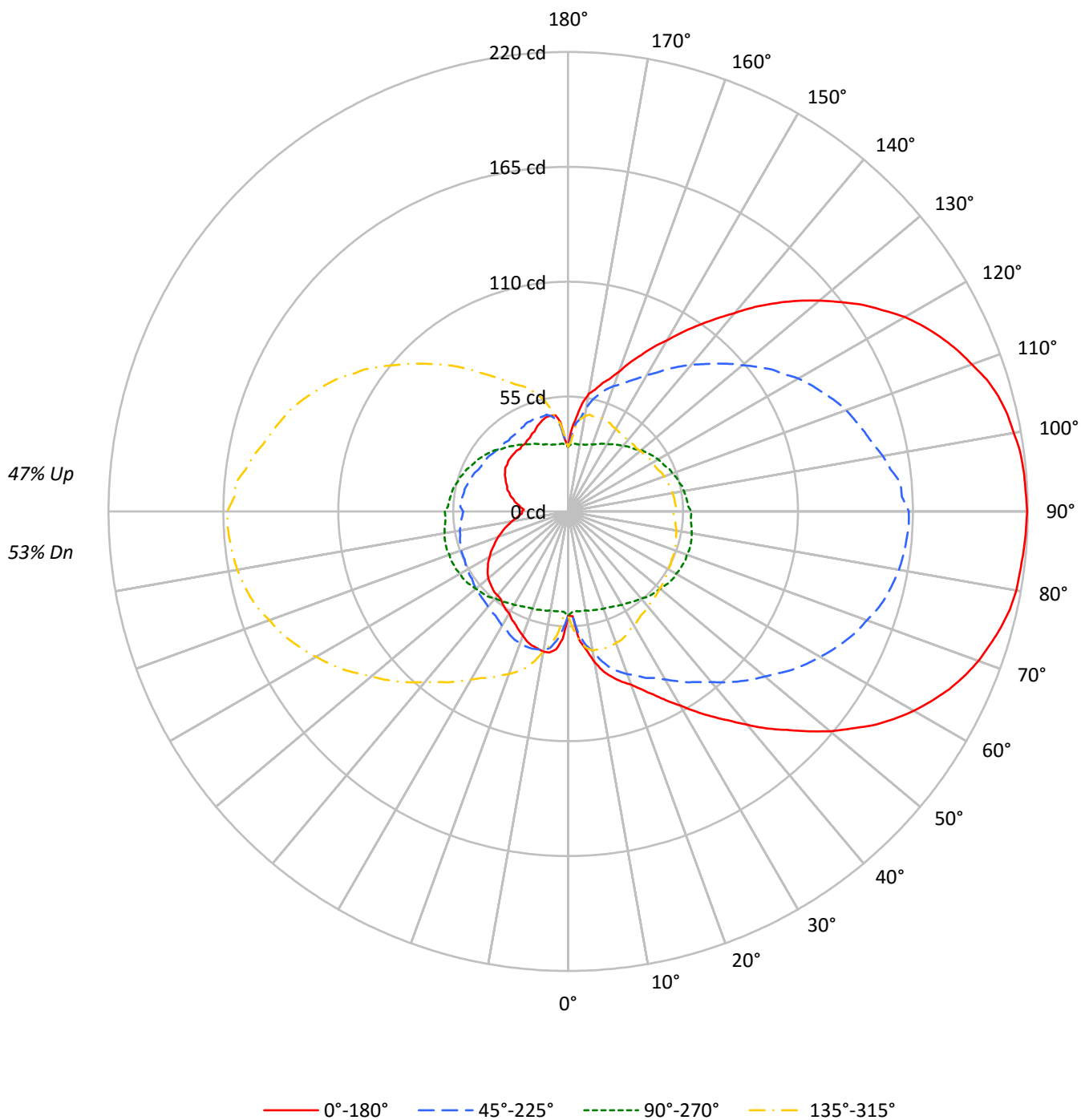
Lumens per Lamp: 1600 (1 lamp)
Luminaire Lumens: 1085.7 lumens
Efficiency: 67.9%
Efficacy: 38.8 lumens/watt
Spacing Criteria (0/90/45): 2.59 / 1.65 / 2.43
Luminous Opening: Rectangular w/ Sides (W: 0.21' x L: 0.83' x H: 0.83')
CIE Type: General Diffuse

Input Watts (W): 28
Input Voltage (V): NR
Input Current (A_{in}): 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				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	73	73	73	73	68	68	68	68	58	58	58	48	48	48	40	40	40
1	63	59	55	51	58	54	51	47	45	43	40	37	35	33	30	28	27
2	56	50	44	39	51	45	40	36	38	34	31	31	28	25	24	22	20
3	51	42	36	31	46	39	33	29	32	28	24	26	23	20	20	18	16
4	46	37	30	25	42	34	28	24	28	23	20	23	19	16	18	15	13
5	42	32	26	21	38	30	24	20	25	20	16	20	16	13	16	13	10
6	38	29	23	18	35	26	21	17	22	17	14	18	14	11	14	11	9
7	35	26	20	15	32	24	18	14	20	15	12	16	12	10	13	10	8
8	33	23	17	13	30	21	16	12	18	14	10	15	11	9	11	9	7
9	30	21	16	12	28	19	14	11	16	12	9	13	10	7	11	8	6
10	28	19	14	10	26	18	13	10	15	11	8	12	9	7	10	7	5

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	3082	3082	3082	3082
5°	3523	2206	3779	2206
10°	3907	1777	3636	1777
15°	4145	1515	3353	1515
20°	4250	1334	3050	1334
25°	4498	1206	2770	1206
30°	4851	1121	2550	1121
35°	5312	1061	2412	1061
40°	5843	1014	2301	1014
45°	6458	995	2249	995
50°	7176	969	2187	969
55°	7910	959	2080	959
60°	8635	940	1958	940
65°	9354	931	1826	931
70°	10075	921	1715	921
75°	10816	920	1588	920
80°	11611	913	1461	913
85°	12472	905	1345	905

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ZONAL LUMENS:

Zone	Lumens	% Fixture	% Lamp
0°-10°	5.8	0.5	0.4
10°-20°	19.5	1.8	1.2
20°-30°	33.8	3.1	2.1
30°-40°	49.1	4.5	3.1
40°-50°	66.1	6.1	4.1
50°-60°	83.2	7.7	5.2
60°-70°	97.6	9.0	6.1
70°-80°	107.1	9.9	6.7
80°-90°	110.7	10.2	6.9
90°-100°	109.1	10.1	6.8
100°-110°	101.6	9.4	6.4
110°-120°	89.6	8.3	5.6
120°-130°	73.6	6.8	4.6
130°-140°	55.8	5.1	3.5
140°-150°	39.4	3.6	2.5
150°-160°	25.7	2.4	1.6
160°-170°	14.1	1.3	0.9
170°-180°	4.0	0.4	0.2
0°-30°	59.1	5.4	3.7
0°-40°	108.2	10.0	6.8
0°-60°	257.4	23.7	16.1
0°-90°	572.9	52.8	35.8
90°-120°	300.3	27.7	18.8
90°-150°	469.1	43.2	29.3
90°-180°	513.0	47.2	32.1
0°-180°	1085.7	100.0	67.9

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	50	50	50	50	50	
5°	62	48	66	48	62	6
15°	82	49	66	49	82	23
25°	97	50	60	50	97	45
35°	120	53	54	53	120	76
45°	148	56	52	56	148	115
55°	178	59	47	59	178	160
65°	201	60	39	60	201	199
75°	214	61	32	61	214	227
85°	219	59	24	59	219	179
90°	220	59	22	59	220	120
95°	219	57	23	57	219	178
105°	213	55	29	55	213	225
115°	197	51	33	51	197	195
125°	172	48	37	48	172	154
135°	141	43	38	43	141	110
145°	109	39	38	39	109	69
155°	83	36	41	36	83	39
165°	64	33	46	33	64	18
175°	45	33	43	33	45	5
180°	31	31	31	31	31	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9	49.9
2.5°	50.2	50.9	50.1	48.7	48.1	51.1	56.4	60.0	61.1	60.0	56.4
5°	61.8	62.2	59.2	53.3	47.9	55.2	62.0	65.3	66.3	65.3	62.0
7.5°	66.8	66.7	64.4	58.9	48.2	58.6	65.8	67.6	68.1	67.6	65.8
10°	73.3	73.4	68.0	62.6	48.1	61.8	67.6	68.3	68.2	68.3	67.6
12.5°	78.5	78.1	73.1	64.7	48.7	64.0	67.6	68.2	67.2	68.2	67.6
15°	82.2	81.7	77.4	66.7	48.8	65.6	67.9	67.6	66.5	67.6	67.9
17.5°	85.5	84.7	80.3	69.8	49.3	66.7	67.7	66.5	65.3	66.5	67.7
20°	88.2	87.3	82.9	72.9	49.5	67.4	67.0	64.7	63.3	64.7	67.0
22.5°	92.3	90.4	85.0	75.5	49.8	67.7	66.6	62.9	61.6	62.9	66.6
25°	96.8	94.0	87.9	77.7	50.3	67.6	65.5	61.1	59.6	61.1	65.5
27.5°	102.0	99.3	89.9	79.6	50.9	68.2	63.9	59.9	58.3	59.9	63.9
30°	107.3	104.0	92.9	81.1	51.6	68.2	63.2	58.4	56.4	58.4	63.2
32.5°	113.5	108.8	96.3	83.2	52.1	68.2	61.9	56.9	55.6	56.9	61.9
35°	119.8	114.2	99.8	84.6	53.0	68.2	60.8	55.8	54.4	55.8	60.8
37.5°	126.1	120.7	102.9	86.8	53.7	68.2	60.3	54.4	52.9	54.4	60.3
40°	133.3	126.8	106.6	88.3	54.3	68.2	59.6	53.6	52.5	53.6	59.6
42.5°	140.9	132.7	111.0	90.0	55.7	67.7	58.8	53.5	52.3	53.5	58.8
45°	147.9	139.5	115.1	91.8	56.4	67.6	58.4	53.1	51.5	53.1	58.4
47.5°	155.8	146.2	119.2	93.5	56.9	67.4	57.9	52.8	50.7	52.8	57.9
50°	163.7	152.9	122.9	94.9	57.6	67.4	57.4	52.1	49.9	52.1	57.4
52.5°	170.7	159.5	127.2	96.6	58.3	67.0	57.0	51.7	48.6	51.7	57.0
55°	178.4	166.5	131.8	98.2	59.2	66.8	56.2	50.8	46.9	50.8	56.2
57.5°	184.9	172.7	135.6	99.5	59.7	66.8	56.1	50.0	45.4	50.0	56.1
60°	191.0	178.8	139.3	101.0	59.7	66.5	55.4	49.0	43.3	49.0	55.4
62.5°	196.3	184.4	143.0	102.2	60.3	66.3	55.3	48.1	41.6	48.1	55.3
65°	201.3	189.1	146.5	103.0	60.4	65.7	54.6	46.9	39.3	46.9	54.6
67.5°	205.5	193.7	149.7	103.9	60.8	65.7	54.6	45.7	37.6	45.7	54.6
70°	209.1	197.7	152.2	105.1	60.5	65.3	54.4	44.3	35.6	44.3	54.4
72.5°	211.8	201.1	155.3	105.5	60.8	64.9	53.9	43.3	33.3	43.3	53.9
75°	214.5	204.0	157.6	105.9	60.7	64.0	53.6	42.2	31.5	42.2	53.6
77.5°	216.6	206.5	159.2	106.8	60.5	63.8	52.9	41.6	29.2	41.6	52.9
80°	217.8	208.3	160.8	107.0	60.1	62.8	52.6	40.5	27.4	40.5	52.6
82.5°	218.2	209.4	161.8	107.0	59.6	62.5	51.9	39.5	25.2	39.5	51.9
85°	218.8	210.3	162.5	106.9	59.0	61.7	51.5	39.0	23.6	39.0	51.5
87.5°	219.3	211.2	163.2	106.7	58.8	61.0	50.7	38.1	22.1	38.1	50.7
90°	219.7	211.4	163.1	106.4	59.0	60.5	50.2	37.7	22.1	37.7	50.2
92.5°	219.2	211.0	159.9	104.0	57.5	65.7	51.7	38.5	21.2	38.5	51.7
95°	218.9	208.5	159.6	101.1	57.2	64.9	51.3	38.7	22.8	38.7	51.3
97.5°	218.3	204.6	155.6	100.4	56.7	64.4	51.2	38.5	23.8	38.5	51.2
100°	216.6	202.3	153.0	99.5	56.3	64.4	50.7	39.0	25.8	39.0	50.7
102.5°	215.3	200.3	149.4	98.6	55.9	63.2	50.6	38.9	26.7	38.9	50.6
105°	213.2	197.2	146.9	96.7	54.7	63.0	49.9	39.6	28.6	39.6	49.9
107.5°	210.1	193.9	144.2	95.5	54.3	62.0	49.6	39.4	29.4	39.4	49.6
110°	205.7	190.4	141.7	94.5	53.2	61.4	49.0	39.5	31.1	39.5	49.0

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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°	201.7	186.1	138.4	93.0	52.6	61.1	48.4	40.1	31.6	40.1	48.4
115°	197.0	181.2	134.6	91.0	51.3	60.7	47.4	40.6	32.9	40.6	47.4
117.5°	191.9	175.9	131.1	89.8	50.5	59.9	46.9	40.9	33.7	40.9	46.9
120°	186.1	170.1	127.3	87.8	49.8	59.3	47.0	40.7	35.0	40.7	47.0
122.5°	179.1	163.4	122.4	86.1	48.8	58.6	46.5	40.9	35.7	40.9	46.5
125°	172.4	156.9	118.7	83.7	47.8	57.4	46.3	40.9	36.7	40.9	46.3
127.5°	164.6	149.4	113.7	82.0	46.7	57.3	45.5	40.7	36.7	40.7	45.5
130°	157.0	142.5	108.9	79.8	45.7	56.3	45.2	40.3	37.5	40.3	45.2
132.5°	149.3	134.9	104.6	77.8	44.0	56.2	44.5	40.4	37.7	40.4	44.5
135°	141.1	127.8	100.1	75.7	43.0	55.0	44.7	39.6	37.8	39.6	44.7
137.5°	132.9	120.7	95.6	73.6	42.2	54.2	44.8	39.2	37.9	39.2	44.8
140°	124.0	114.2	91.6	70.8	40.9	53.6	44.3	38.7	38.2	38.7	44.3
142.5°	116.2	107.5	87.4	69.0	40.1	52.8	44.8	39.1	37.7	39.1	44.8
145°	108.9	101.2	83.3	66.6	39.0	52.1	44.8	39.1	38.5	39.1	44.8
147.5°	101.6	94.7	78.8	65.1	38.2	51.8	45.2	40.1	38.3	40.1	45.2
150°	94.6	89.0	75.3	63.0	37.1	50.9	45.6	40.3	39.3	40.3	45.6
152.5°	88.8	82.9	71.7	61.2	36.6	50.5	46.0	41.2	39.7	41.2	46.0
155°	82.6	77.7	68.8	58.7	35.7	49.8	46.9	41.9	41.0	41.9	46.9
157.5°	77.1	72.7	65.8	55.6	34.8	49.9	46.8	43.6	41.6	43.6	46.8
160°	71.1	69.1	63.9	53.2	34.1	49.0	47.4	44.9	43.4	44.9	47.4
162.5°	66.7	65.4	61.4	49.7	33.8	48.6	46.9	45.7	44.5	45.7	46.9
165°	63.6	62.1	58.2	46.5	33.0	47.5	47.0	46.7	45.7	46.7	47.0
167.5°	59.8	59.2	55.1	45.7	32.8	45.5	47.5	46.3	46.5	46.3	47.5
170°	57.2	56.2	50.5	44.2	32.5	43.8	46.3	46.8	46.5	46.8	46.3
172.5°	52.3	50.1	44.8	39.5	32.5	40.9	44.5	45.5	46.5	45.5	44.5
175°	45.1	43.5	42.3	35.6	32.6	37.2	41.0	42.1	43.0	42.1	41.0
177.5°	39.6	38.3	35.6	32.1	32.2	32.4	33.6	33.4	34.4	33.4	33.6
180°	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0

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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	49.9	49.9	49.9	49.9	49.9	49.9
2.5°	51.1	48.1	48.7	50.1	50.9	50.2
5°	55.2	47.9	53.3	59.2	62.2	61.8
7.5°	58.6	48.2	58.9	64.4	66.7	66.8
10°	61.8	48.1	62.6	68.0	73.4	73.3
12.5°	64.0	48.7	64.7	73.1	78.1	78.5
15°	65.6	48.8	66.7	77.4	81.7	82.2
17.5°	66.7	49.3	69.8	80.3	84.7	85.5
20°	67.4	49.5	72.9	82.9	87.3	88.2
22.5°	67.7	49.8	75.5	85.0	90.4	92.3
25°	67.6	50.3	77.7	87.9	94.0	96.8
27.5°	68.2	50.9	79.6	89.9	99.3	102.0
30°	68.2	51.6	81.1	92.9	104.0	107.3
32.5°	68.2	52.1	83.2	96.3	108.8	113.5
35°	68.2	53.0	84.6	99.8	114.2	119.8
37.5°	68.2	53.7	86.8	102.9	120.7	126.1
40°	68.2	54.3	88.3	106.6	126.8	133.3
42.5°	67.7	55.7	90.0	111.0	132.7	140.9
45°	67.6	56.4	91.8	115.1	139.5	147.9
47.5°	67.4	56.9	93.5	119.2	146.2	155.8
50°	67.4	57.6	94.9	122.9	152.9	163.7
52.5°	67.0	58.3	96.6	127.2	159.5	170.7
55°	66.8	59.2	98.2	131.8	166.5	178.4
57.5°	66.8	59.7	99.5	135.6	172.7	184.9
60°	66.5	59.7	101.0	139.3	178.8	191.0
62.5°	66.3	60.3	102.2	143.0	184.4	196.3
65°	65.7	60.4	103.0	146.5	189.1	201.3
67.5°	65.7	60.8	103.9	149.7	193.7	205.5
70°	65.3	60.5	105.1	152.2	197.7	209.1
72.5°	64.9	60.8	105.5	155.3	201.1	211.8
75°	64.0	60.7	105.9	157.6	204.0	214.5
77.5°	63.8	60.5	106.8	159.2	206.5	216.6
80°	62.8	60.1	107.0	160.8	208.3	217.8
82.5°	62.5	59.6	107.0	161.8	209.4	218.2
85°	61.7	59.0	106.9	162.5	210.3	218.8
87.5°	61.0	58.8	106.7	163.2	211.2	219.3
90°	60.5	59.0	106.4	163.1	211.4	219.7
92.5°	65.7	57.5	104.0	159.9	211.0	219.2
95°	64.9	57.2	101.1	159.6	208.5	218.9
97.5°	64.4	56.7	100.4	155.6	204.6	218.3
100°	64.4	56.3	99.5	153.0	202.3	216.6
102.5°	63.2	55.9	98.6	149.4	200.3	215.3
105°	63.0	54.7	96.7	146.9	197.2	213.2
107.5°	62.0	54.3	95.5	144.2	193.9	210.1
110°	61.4	53.2	94.5	141.7	190.4	205.7

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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
112.5°	61.1	52.6	93.0	138.4	186.1	201.7
115°	60.7	51.3	91.0	134.6	181.2	197.0
117.5°	59.9	50.5	89.8	131.1	175.9	191.9
120°	59.3	49.8	87.8	127.3	170.1	186.1
122.5°	58.6	48.8	86.1	122.4	163.4	179.1
125°	57.4	47.8	83.7	118.7	156.9	172.4
127.5°	57.3	46.7	82.0	113.7	149.4	164.6
130°	56.3	45.7	79.8	108.9	142.5	157.0
132.5°	56.2	44.0	77.8	104.6	134.9	149.3
135°	55.0	43.0	75.7	100.1	127.8	141.1
137.5°	54.2	42.2	73.6	95.6	120.7	132.9
140°	53.6	40.9	70.8	91.6	114.2	124.0
142.5°	52.8	40.1	69.0	87.4	107.5	116.2
145°	52.1	39.0	66.6	83.3	101.2	108.9
147.5°	51.8	38.2	65.1	78.8	94.7	101.6
150°	50.9	37.1	63.0	75.3	89.0	94.6
152.5°	50.5	36.6	61.2	71.7	82.9	88.8
155°	49.8	35.7	58.7	68.8	77.7	82.6
157.5°	49.9	34.8	55.6	65.8	72.7	77.1
160°	49.0	34.1	53.2	63.9	69.1	71.1
162.5°	48.6	33.8	49.7	61.4	65.4	66.7
165°	47.5	33.0	46.5	58.2	62.1	63.6
167.5°	45.5	32.8	45.7	55.1	59.2	59.8
170°	43.8	32.5	44.2	50.5	56.2	57.2
172.5°	40.9	32.5	39.5	44.8	50.1	52.3
175°	37.2	32.6	35.6	42.3	43.5	45.1
177.5°	32.4	32.2	32.1	35.6	38.3	39.6
180°	31.0	31.0	31.0	31.0	31.0	31.0

(END OF REPORT)