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A Three-Dimensional Transient Numerical Study and Analysis of Blood Flow Dynamics in Renal Artery Aneurysms

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By

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A Three-Dimensional Transient Numerical Study and Analysis of Blood Flow Dynamics in Renal Artery Aneurysms

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"The goal is nothing other than the coherence and completeness of the system not only in respect of all details, but also in respect of all physicists of all places, all times, all peoples, and all cultures."

… Max Planck.

Abstract

The kidney is one of the main components of the urinary system. The main function of the kidney is filtering the blood to eliminate unwanted substances and to keep a certain concentration of red blood cells. The kidney, also, produces some of the necessary hormones needed for growth and daily activities.

Aneurysm, in general, is bulge formed in the blood vessels due to the weakening of the vessel's wall. It could happen in many different locations with different sizes and forms. Renal artery aneurysm (RAA) is the type of aneurysm that appears on the main renal artery or one of the branches. Certain blood pressure is expected in the renal artery. When the pressure varies, the baroreceptors senses the change and trigger the renin-angiotensin-aldosterone system (RAAS) to react. There are multiple causes for the pressure change in the renal artery. One of these causes is the existence of an RAA.

In this thesis, a 3D model was developed to study and analyze the blood flow in the renal artery network. The simulation was done using a finite element analysis (FEA) software COMSOL Multiphysics© (CMP). The analysis covered several different criteria such as; location, size, and blood flow. The simulation was done to test the pressure drop throughout the network by fixing the pressure at the exit and varying the blood flow at the inlet for a laminar, Newtonian, transient fluid. RAAS is triggered when pressure difference in the renal artery is 10mmHg average or 20mmHg at peak. It was concluded that at the extreme case of renal artery aneurysm (X-RAA), there is enough static pressure drop to trigger RAAS and subsequently causes secondary hypertension.

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Chapter One: Introduction

1.1 Statement of the Problem

Renin-angiotensin-aldosterone system (RAAS) is responsible for regulating the blood pressure and the cardiac output. It depends on baroreceptors located in various locations in the body to sense short term and long term pressure change [1,2]. For the healthy human being, RAAS is triggered to adjust the blood pressure due to physical activity. When a renal artery aneurysm (RAA) is located on the renal artery, for an extreme case, RAAS is triggered to compensate for the permanent pressure drop caused by an RAA [1,2].

RAA, for the most part, is not dangerous. Many people live without knowing they have RAA. Most of the cases are discovered by accident during another medical exam [3,4]. When RAA becomes an extreme case, it could lead to serious health consequences. It may require a surgery to be removed. The success of the surgery depends on the location and the size of an RAA [3,5].

Understanding the mechanics and characteristics of the blood in and around the Renal Artery Aneurysm helps in understanding how the body reacts to it. To understand the mechanics of the blood in RAA, researchers would need to experiment on a human being. These procedures could be evasive and costly as the same time. The other option is a numerical simulation for blood vessels and RAA, which may be a better solution as it is less expensive, and doesn't harm any human body.

The question here is, how much a pressure drop is caused by the various cases of RAA? Is there enough to trigger RAAS to react and cause secondary hypertension [6]? These questions can be answered by simulating the different characteristics of RAA and compare them with the typical renal artery network (TRAN). It is expected to find some cases where an RAA could cause secondary hypertension [6].

1.2 Objectives

The objectives of this thesis are to understand the effect of the *Renal artery aneurysm* (RAA) on the blood flow to the Kidney through the following;

1. Determine the distribution of the static pressure as a function of time for different locations of RAA geometry and compare it with the *Typical renal artery network* (TRAN).
2. Determine the distribution of the static pressure as a function of time for different growth stages of RAA geometry and compare it with TRAN.
3. Determine the distribution of the static pressure as a function of time for RAA geometry throughout the blood cycle and compare it with TRAN.

Based on the 1, 2, & 3, find the extreme case (X-RAA), then;

4. Analyze the blood velocity field and velocity streamlines for X-RAA.
5. Analyze the vorticity field for X-RAA.
6. Analyze the strain rate field for X-RAA.

Chapter Two: Background and Literature Review

2.1 Biology Background

2.1.1 Human Body

A healthy human operates like a machine. It can perform many different functions using the various parts of the body. Some of these functions can be as simple as digesting food and others can be as complicated as defending the body against sickness and viruses [7]. On the outside, the main parts of the human body are the head, neck, trunk, legs, fee, arms, and hands. On the inside, the body is much more complicated. There are ten different systems which work together to enable the functionality of the body. These systems are: nervous system, endocrine system, respiratory system, Lymphatic System, Digestive System, Cardiovascular System, Muscular System, Skeletal System, Reproductive System, & Urinary System [7]. In this thesis, the cardiovascular system functionality will be discussed in further detail in the next section.

Every part of the body is made of many cells. For a mature human, the estimated number of cells is about 75 trillion cells [7]. These cells are organized precisely to perform the needed function. There are two different kinds of cells in the way how they perform a function; the first kind is the individual cells which perform the task independently of other cells such as blood cells. The second kind of cells is the cells that join forces with other cells to perform the function [7]. An example of this kind of cells are the tissues which are composed of many cells joined together to perform one specific task. In the human body, there are 200 different type of cells [7]. In this thesis, the blood cell which will be discussed in later section.

2.1.2 Cardiovascular System

The cells of the human body have metabolic and nutritious needs. The blood job is to carry and circulate these nutrients to the various cells [7]. The cardiovascular system is also known as the circulatory system or the vascular system [8]. The cardiovascular system is responsible for circulating the blood in the body. The cardiovascular system is considered as a closed system, which means the blood never leaves the network (see Fig. 1). It consists of two main loops. The first loop is The Pulmonary circuit, which carries deoxygenated blood to the lungs to be oxidized. The second loop is the Systemic circuit which circulates oxygenated blood to provide nutrients or oxygen to the cells [8].

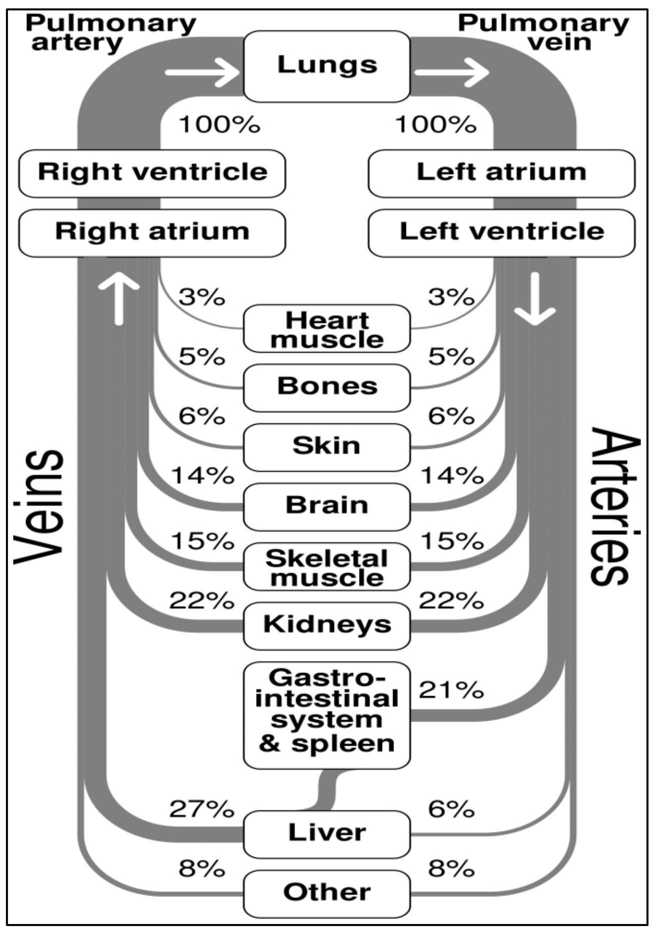

Fig. 1. Diagram of the human circulatory system. Drawn by CMG Lee and licensed under CC 3.0.

The Cardiovascular system consists of two main components; the heart and the blood vessels. The heart acts as the pump and is responsible for keeping the blood circulation. It pumps the oxygenated blood through the systemic loop and the de-oxygenated blood through the pulmonary circuit to the lungs [7,8]. The average size of the heart in an adult human is about 14cm x 9cm. The Heart lies in the thoracic cavity left to the center of the body. The heart receives nutrients through the coronary circulation system[1] [7].

The second component is the blood vessels. The oxygenated blood leaves the heart and enters the first part of the systemic system, which is the aorta. It is a thick-walled blood vessel extending down the human body into the abdomen. The aorta is considered as an equivalent to a main highway for the blood flow. The aorta branches out into smaller arteries along the way [7]. These arteries are responsible of carrying the oxygenated blood from the heart to the various organs and systems of the body. The arteries have very elastic characteristics due to the thick walls which is due to the lumens layer in the vessel. The reason for the elasticity of the arteries is to handle the change in blood volume. When the arteries reach the body organs, they split into much smaller blood vessels with very fragile walls. Those vessels are called the capillaries. The capillaries, then, carry the blood into the body organs and out of the body organs [7]. The deoxygenated blood is returned to the heart through the veins. The venous systems usually contain 60-65% of the blood volume in the body, which is why they are usually bigger than the arteries [8,9].

[1] The coronary circulation system is the blood vessels responsible to circulate the blood to the heart muscles.

2.1.3 The Kidney

The kidney is one of the main components of the urinary system alongside the ureters, bladder, and urethra. Located on the back wall of the abdomen tucked under the twelfth rib [7]. To keep the cells working properly, the kidney filters the blood to keep a certain concentration of blood cells and certain volume. The kidney, also, eliminates the unwanted substances [10]. There are two kidneys in the human body. Occasionally, upon a failure of one of the kidneys, the body can still function with the other kidney [10]. They are bean-shaped and about a fist size. Each kidney filters daily an average of 150 quarts of blood and produces 1-2 quarts of urine. The urine is transported to the bladder through the ureters [7].

The importance of the kidneys comes in controlling the blood levels in the body, produce hormones which are necessary for the growth and daily activities, prevent the waste buildups in the body, and keep the phosphate, sodium, potassium, and electrolyte and a steady level [7]. Approximately 22% of the blood in the arterial artery go to the kidney.

There are more than a million filtering units in each kidney. Those filtering units are called *nephrons*. The filtering process happens into two steps. The first step when the blood goes through the *glomerulus* which allows the fluid to and waste to pass through but holds the blood cells and proteins back. The second step happens in the *tubule* which filters the minerals and sends it back to the blood, and the remaining fluid is disposed of as urine [11].

The main renal artery branches out of the abdominal artery into left and right renal artery. Each one of those branches measures on 5.04 $\pm$ 0.74 mm. The right renal artery is, usually, longer than the left one due to the location of the heart on the left part of the body and the abdominal artery is slightly shifted. Also, the right renal artery is slightly lower than the left one as well as the kidneys. Each of the Renal Artery is then divided into anterior and posterior divisions which in turns are divided into smaller branches. The branches split to further smaller branches till they become capillaries (See Fig. 2) [7].

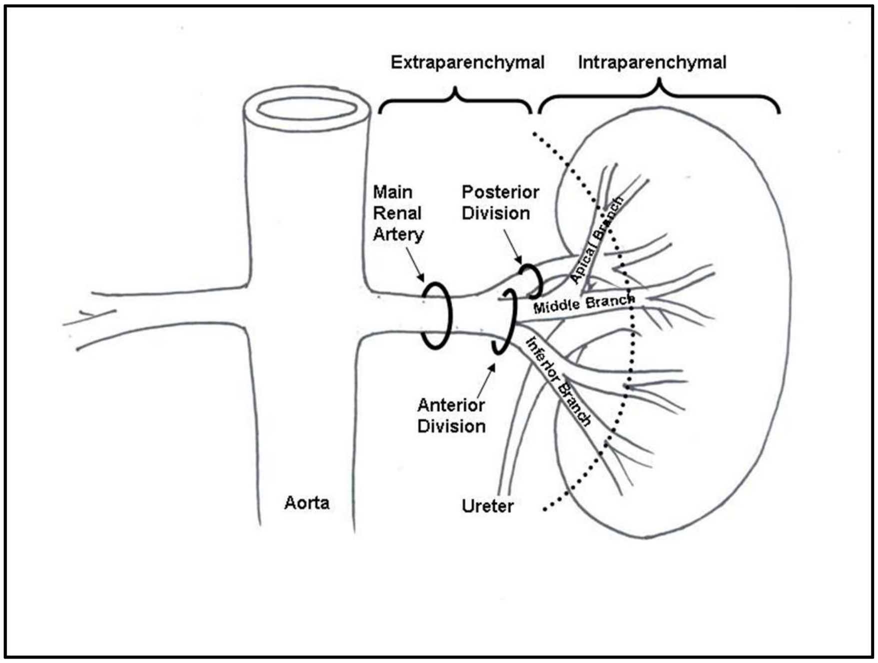

Fig. 2. Renal arteries network.
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2.2. Medical Background

2.2.1 Aneurysm

An aneurysm is a bulge formed in the blood vessels. It can take various shapes and sizes. The main reason for the aneurysm formation is a weakening of the blood vessels [12]. An aneurysm is most common in older adults. As a combination of weak areas on the blood vessel and blood hypertension or blood vessel sclerosis the chances of formation increases [13].

The blood tissues need oxygen and nutrients to strive. With the plaques accumulate on the inside tissues of the arteries. It prevents the oxygen and nutrients to reach the middle layer of the tissues. This cause the tissues to weaken. As the blood keeps flowing in the arteries, the shear forces caused these tissues to stretch. With increasing the area of the vessels, it increases the blood flow and gradually increasing tension on the walls [12].

An aneurysm can occur in any blood vessel [12]. Most of the frequent types are the following:

1) The aorta: starting at the left ventricle all the way down the abdomen. The aorta is the largest blood vessel in the body. The aneurysm on this location is commonly known as *the arterial aneurysm*.
2) The brain: the hardest type to detect is a *brain aneurysm*. They are usually very small and lie down hidden in the inner brain. Most of the brain aneurysm has no signs or symptoms.
3) Others: most of the common types other than the two previously mentioned are the knee, spleen, renal, or intestine.

Anyone is at risk of aneurysm. The likelihood is higher in females over 60 years old. Other factors could increase the likelihood of aneurysm are obesity, heart conditions, smoking, pregnancy, and high fat and cholesterol intakes [12].

There is no specific test to detect the aneurysm, many people could see signs or symptoms to indicate the existence of the aneurysm. Some of these signs are exterior such as swelling or pains in certain part of the body [5]. Other signs are internal such as bleeding, pain, dizziness, or hypertension. On most cases, the aneurysm is detected by a physician during a routine checkup or an examination for other illness. It could be detected with a CT scan[2] or Ultrasound[3]. The CT-Scan is a very helpful tool in detecting the aneurysm as well as the condition of the blood vessel. The weakening of the blood vessel could show on the CT-scan in most of the cases [5].

An aneurysm can be prevented by eating healthy food with a lot of fibers and grains and low saturated fat. Regular workout and exercise are helpful in maintaining healthy blood circulation throughout the body. Stop smoking and have a regular annual check-up [12].

An aneurysm can cause severe illness or death in most cases if it ruptures. There are several ways to treat an aneurysm [5,14], most commonly are:

1) Surgical Clipping: to perform this surgery, it will depend on the size and the location of the aneurysm and how easily can it be accessed. A small metal clip is placed on the base of the bulge to cut the blood circulation. With doing so, the pressure is decreased preventing the rupture of the aneurysm.
2) Surgical extraction: In this procedure, the surgeon removes the aneurysm and patch the blood vessel.
3) Endoscopy procedure: this is done by inserting an endoscope tube in the artery where the aneurysm is located. A coil is inserted in the tube carrying a filling material. This material is inserted in the aneurysm to fill the void and stop the blood flow into it [5].

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[2] CT-Scan is computerized tomography scan which combines series of X-ray images taken from different angels and process them to create cross sectional images.
[3] Also known as sonography where it uses sound waves to create an image of inside the body. It can change in real time.

2.2.2 Renal Artery Aneurysm

Renal artery aneurysm (RAA) is one of many problems that could occur in the kidney and cause it to malfunction. It can be simply described as a growth up to twice the size of the renal artery [15]. The first case of RAA was discovered by accident in 1770 when an autopsy for a sailor's body showed a growth on the renal artery. Later, it was concluded to be a false aneurysm [4]. There are two main kinds of aneurysm; *true aneurysm* and *false aneurysm*. True aneurysm is a result of formation of a sack without any broken layer of the tissues. False aneurysm is a result of tear in on or more of the layers of the blood vessels which would cause the blood to escape and form a clot [16].

A true aneurysm could happen on any blood vessels such as abdominal artery, renal artery, brain vessels, etc. [15,16]. The aneurysm can be in three different types; the first type is saccular which is a growth on one side of the blood vessel in the form of a sack. The second type is fusiform where the growth happens all around the vessel equally. And finally, the third

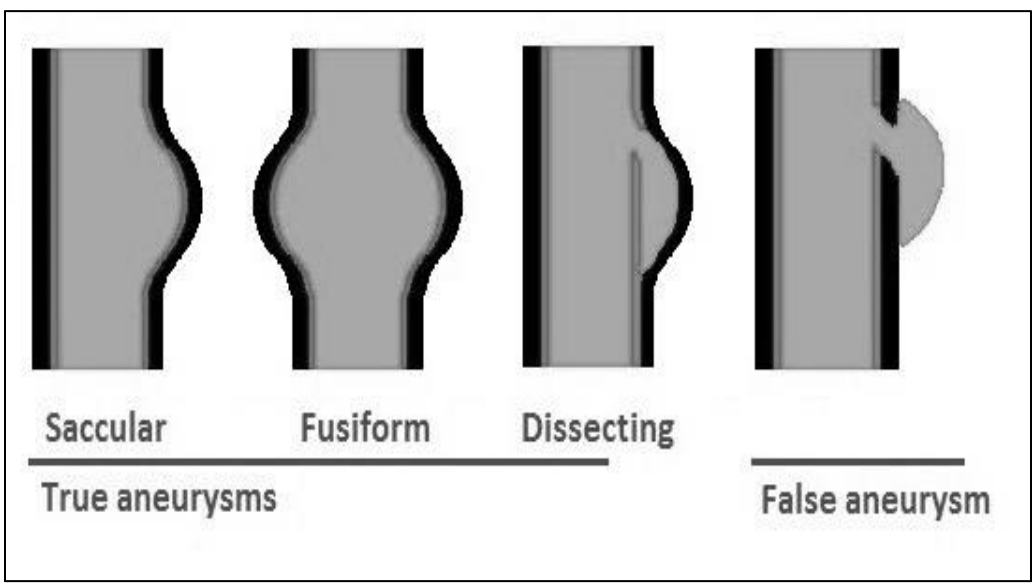

Fig. 3. Types of aneurysm.

type is dissecting aneurysm which is caused when there is a tear in the inner blood vessels walls causing the blood to accumulate in the inner part of the tissues[4] (see Fig. 3) [6,15].

There is common miss-conception in mistaking the false aneurysm with the dissection aneurysm. The big difference in between the two types is where the blood is accumulated. In the false aneurysm, the two inner layers of the vessels are torn, and the blood accumulate in between the muscularis and adventitia layers [16]. In the case of dissecting aneurysm, only, the first layer is torn and the blood accumulates in between the intima and the muscularis layers causing the two-outer layer to weaken and expand [16].

Classifications of RAAs are based on the location of the aneurysm. The majority (85%) of an RAA's, per Dr. Gates, are "Extraparenchymal Aneurysms". This is the class of the aneurysm that is formed outside the kidney on the Renal Artery as seen in Fig. 2. The remaining (15%) are formed on the branches inside the kidney and called "Intraparenchymal Aneurysm" [15]. The Extraparenchymal Aneurysm can be furthered classified based on type as saccular 60%, fusiform 30%, and dissecting 10%. There is 50% chance the patient may have more than one RAA. The study shows that 30% of patients with an RAA have two aneurysms and 20% have three aneurysms [4].

The average age of patients with an RAA is 40-60 years old with predominant women. An RAA can be monitored and repaired when it becomes critical [5]. An RAA has the same frequency between men and women but it could be more fatal in the aged women as the risk of rupture increases [16].

[4] The three layers of tissues are intima, muscularis, and adventitia.

From current studies, there is no specific size for an RAA, they range from 1.3cm to 3cm in diameter. Overall, experts do not think there is a clear danger of rupture for aneurysms under 2cm except in the case of pregnant women [14].

The repair procedure is highly recommended when it exceeds 2cm [14]. There were incidents where an aneurysm has ruptured at smaller sizes than 2cm specifically at 1.5cm [14]. The main repair procedure includes surgical removal and patching the artery. In case of an RAA, the endoscopy has a very small chance is succeeding [14,17].

2.2.3 Renin-Angiotensin-Aldosterone System

Renin-angiotensin-aldosterone System (RAAS) is very important in regulating the arterial pressure and the cardiac output[5]. It is done by regulating the blood volume and the vascular resistance [1,18]. From the name of the system, it is indicated that there are three main components. The first component is the renin which is a protein and enzyme released by the kidney [2]. There are three stimuli for the kidney to release the renin;

1) The first stimulus is the detection of the lower the arterial pressure by the baroreceptors. Most scientists think this is the main reason for the release of the renin. There are two other stimuli, but they have a minimum effect compared to the first one.
2) The decrease in sodium levels in the kidney's distal tubules.
3) Activation of the sympathetic nerve [2].

RAAS functionality depends on *the baroreceptors*. The baroreceptors are sensors located on the blood vessels and are activated by the change in blood pressure causing those receptors to stretch [1,18]. These receptors send a signal to the brain when activated which

[5] Cardiac output is the amount of blood pumped by the heart in a minute.

signals the heart to change the blood flow accordingly to maintain the desired blood flow throughout the system. There are two different kinds of baroreceptors:

1) *Arterial baroreceptors* which are located along the arterials blood vessels. These receptors sense the change in the average blood volume as well as the pulse to pulse blood pressure change. The response of the baroreceptors is quick.
2) *Low-pressure baroreceptors* which are in the large veins. These receptors have a big effect on regulating the mean pressure which consequently causes major change in the salt and water concentration in the renal system [1,2,18].

When the renin is activated by the kidney, the liver is alarmed to produce the angiotensinogen which is essentially a renin substrate. Consequently, angiotensin I and angiotensin II are formed where they stimulate the release of the aldosterone. Aldosterone is a hormone produced by the adrenal gland[6]. It plays an essential role in the sodium conservation by the renal system and regulates the arterial blood pressure [2].

2.3 Biomechanics

2.3.1 Blood Rheology

Hemodynamics is the study of the movement and deformation of the blood and the forces that produce the flow [19]. The blood has many duties in the body. Beside the main job of transporting the oxygen and nutrients to various organs and tissues, the blood transport heat, control the PH in the body, and play significant role in the immune system [19]. In an

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[6] Adrenal glands are located above the kidney, produce various hormones which they secrete them directly into the blood.

adult human body, there is approximately 5 liters of blood on average which is 8% of the body weight [20].

The main components of the blood are White blood cells (leukocytes), Red blood cell (erythrocyte), platelets (thrombocyte), and plasma [19]. White blood cells are very essential in the immune system of the body. Platelets are responsible for causing the blood to thickens and be more viscous. Finally, the plasma which is the liquid medium that host all the blood components as well as waste and nutrients. The plasma helps the blood particles to circulate in the vessels [19].

Red blood cells form most the blood with about 45% of the entire blood components. This ratio is called *hematocrit.* The red blood cells are responsible for carrying the oxygen and transport it. Red blood cells take the form of biconcave disks. There are 8 million red blood cells in the body. The diameter of each cell is 8μm with a 3μm thickness. They are considered more deformable cells than any other cells in the body especially when they go through very small vessels with less than 5μm in diameter [19].

Red Blood cells have two major effects on blood rheology; the red cell alignment and *the rouleaux*[7] formation (see table. 1). The red blood cell alignment happens due to its disc shape. In the blood stream, the red blood cells orientations are governed by two different forces. The first force is Brownian motion which constantly try to randomize the orientation of the red blood cells. On the other hand, the shear force effect can be explained per C. Ross [19] as "When red cells are randomly or near randomly oriented, then individual cells will bridge between different streamlines, thereby providing mechanical coupling between two different

[7] Red blood cells are stacked and formed into rolls.

fluid regions having potentially different velocities. This will tend to increase the effective viscosity the magnitude of this effect will decrease as red cells become progressively more oriented as the shear stress increase." [19]

The other effect of the red cells on the blood rheology is the rouleaux formation. With the low to non-movement in the blood, groups of red blood cells start forming. The cells formation gets larger and interconnect into a network. With this formation, the blood becomes more resistant to deformation which in result will increase the effective viscosity. This would cause the blood to become shear thinning [19].

Table 1. The effect of red cells on blood rheology.
Adapted from C. Ross Pg. 127

Characteristics	Low Shear Rate	High Shear Rate
Red Cell Orientation	Randomly Oriented Effective Viscosity increased	Aligned with streamlines Effective Viscosity decreased
Rouleaux Formation	Rouleaux Formation Effective Viscosity increased	Rouleaux Breakup Effective Viscosity decreased

2.3.2 Blood Flow in Large Arteries –vivo-

The are many factors influencing the blood flow in the large arteries. Some of these factors are; the complex geometry of the arteries due to curvatures, bifurcation[8], and change in caliber. The flow is unsteady to a high degree. The arteries are not fixed in place and rather

[8] Division into smaller branches

moving either inside the body or with the body. And finally, the change of pressure coming from the heart causes the artery walls to be distensible[9] and compliant[10] [19,20].

The blood flow in the large arteries can have a big range of velocities and *Reynolds number* (Re). For example, the blood velocity in the Ascending artery is 112/60 cm/s while Reynold number is 1,500. For the Renal Artery, the blood velocity is 72/26 cm/s (0.72/0.26 m/s) and Reynolds number is approximately 700 [19].

One of the most important questions for the blood flow in the Large arteries is whether it can be treated as *Newtonian fluid*[11]. C. Ross [19] has concluded that typical wall shear stress in most large arteries are in the range of 1-15 dynes/cm^2 which corresponds to wall shear rate of 40 - 450 s^{-1}. He concluded that the blood flow in medium to large arteries can be treated as Newtonian fluid and ignore the non-Newtonian characteristics of the flow [19].

2.4 RAA and Hypertension

Hypertension is the increase in blood pressure beyond the normal values [21]. This increase causes higher blood forces on the vessels' walls as well as the heart [21,22]. In the long term, it would cause severe damages to the cardiovascular system, and it could lead to death. There is no apparent cause of the primary hypertension other than it develops over the years. The patient could go for several number of years without knowing he/she has primary hypertension [6,23].

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[9] Expand outward due to inner pressure.
[10] flexible
[11] The viscous stress is linearly proportional to the strain rate at every point.

The secondary hypertension is another type of hypertension with known causes which cause the blood pressure to increase suddenly. Some of those causes are; kidney failure, sleep apnea, illegal drugs, high alcohol consumption, thyroid problem, etc. [6]. The secondary hypertension caused by the kidney failure which is referred to as renin-dependent hypertension [6,22]. For this to happen, there needs to be an average of 10mmHg average pressure loss or 20mmHg peak pressure loss across the renal artery [6]. With the existence of an RAA on the renal artery, the blood flow could change in a way that would cause the RAAS to register lower than normal pressure reading which causes it to produce the angiotensin II leading into the secondary hypertension and consequently cause a secondary hypertension [6].

There has been limited research on the relationship between RAA and secondary hypertension. Some of the researchers used numerical methods on a sectional 3D geometry or expanded 2D model.

A significant study of the effect of the cusp size on the secondary hypertension was done by Heflin [6]. It was conducted to find the relationship between the cusp size of an RAA and the pressure drop along the renal artery. They found an additional pressure drop of 4.2-8.4 mmHg for a saccular RAA with various cusp size. It was concluded that an RAA with this magnitude of pressure drop would trigger RAAS causing secondary hypertension [6,24].

Chapter Three: Methodology

3.1 Overview

This research is based on the following idea, “For any fluid traveling from point A to B, there is a change in pressure. Obstacles along the path could lead to an additional and more noticeable change in pressure.”

There are two methods to study the pressure change in the renal arteries;

1) The study could be done by experimenting on human beings. This method could be expensive, uncomfortable, and evasive. There have been several studies on how rats react to clipping the renal artery in the past [6]. Human life is much more valuable than rats and cannot be used for experimental research in the same manner, therefore, a different method is needed.
2) *Numerical analysis*. This is done by creating a model and simulating real-life scenario using a numerical analysis software. The accuracy of this method will depend on the assumptions made and how accurately the real-life.

3.2 Research Method

The analytical method of doing a research is a credible method and fully deployed in the science and technology field. It employs the critical thinking skills of the researchers in finding the facts and analyzing the results. The researcher tries to find the facts to add credibility to the idea being presented. The first step of the analytical method is identifying the problem (refer to section 1.1). Then, setting the objectives (refer to section 1.2).

3.3 Finite Element Analysis/ COMSOL Multiphysics©

The next step is finding the appropriate method to simulate and test the results. It requires an advanced software that can simulate the blood flow in the renal arteries to a high degree of accuracy. A decision was made by the author to use a *Finite Element Analysis* (FEA) also known as Finite Element Method (FEM) which solves physics and engineering problems using numerical methods. Some of the FEA applications are heat transfer, fluid mechanics, structural analysis, electromagnetic, etc. [25].

The main idea of the FEA is breaking a complex geometry into smaller “elements”. Then apply the required equations to each one of the individual elements. Then, Use the output of each one of these elements as an input to the next one. The system keeps on changing the values in every iteration to reach the desired overall accuracy of the system. The smaller the desired error (in the magnitude of 10^{-6} in this research), the longer time it will take to process the simulation [25].

The user decides indirectly on the number and the size of the elements. By having more elements in the geometry, represents a better emulation for the complex geometry [25]. Further details on the geometry’s elements are discussed in later section.

There are many choices for FEA software. The author has opted to use COMSOL Multiphysics© (CMP). It is One of the most advanced pieces of software used to analyze fluid flow and other physical phenomena. It was created by a Swedish company COMSOL™ in 1986 and was built mainly to aid student, researchers, and engineers in a finite element analysis and simulation across multiple areas of engineering and physics. It helps in product developments for mechanical, electrical, chemical, and fluid application as well as multiple others specific areas of study. CMP distinguished itself from other pieces of software by having complete set of tools to construct the geometry, analyze the mesh, simulate the problem, view the results [25]. In this study, COMSOL Multiphysics© 5.2a for Fluid Flow was used (Licensed by the University of Central Oklahoma #3076616). The software runs on Buddy supercomputer cluster (Buddy) at the University of Central Oklahoma (Funded by National Science Foundation grant ACI-1429702) with Hi-memory nodes (128Mb of RAM).

The basic idea of CMP is *the discretization*[12] *of physical elements*. Physics laws are usually represented by partial differential equations. Therefore, for complex shapes and geometries, these equations cannot be solved analytically and instead need to be solved numerically [25]. The idea of the numerical method is to approximate the differential equations by discretizing of physical elements such as velocity and pressure. The solution from the numerical model approximates the actual solution.

To explain the idea of discretizing the physical elements, let's assume that ***Z*** is a function of physical element such as pressure, velocity, …etc. we can approximate *Z* as a function Z_h. Where;

$Z_h = \sum Z_i \ \varphi_i$

Z_i: the approximation coefficient of the function Z

φ_i: the approximation function for each element.

An example of function approximation is shown in Fig. 4 where *Z* is the original function (red). The function *Z* is broken into smaller elements of *Zi*. The size of these elements could be

[12] The process of transferring continuous functions, models, and equations into a discrete counterparts accompanied with some error.

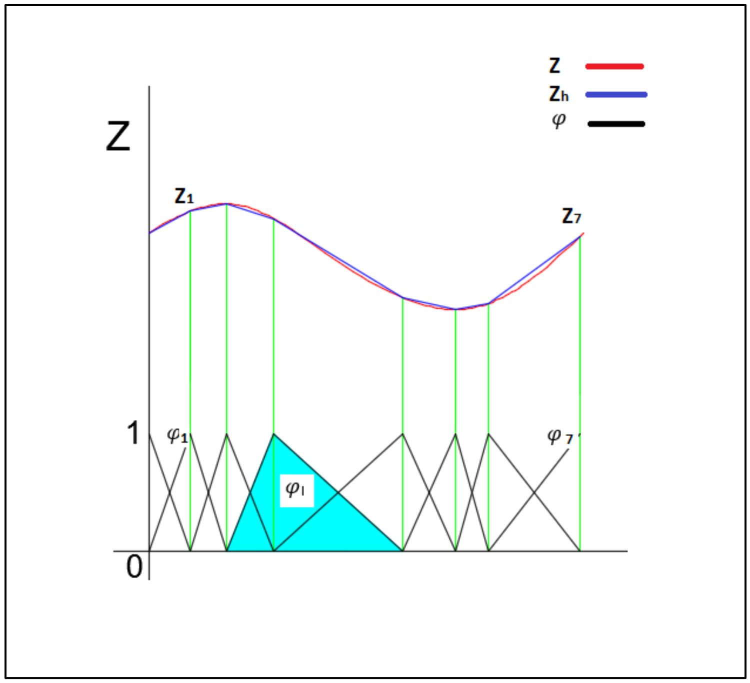

Fig. 4. Function approximation in CMP.

either uniform of non-uniform based on the complexity of the function. Each of these elements has an approximation function φ_l (black) which has a 1 value desired node and 0 value at all the other nodes. The approximated function Z_h (blue) is represented as multiple straight lines. The numerical method can estimate the error of the estimation where the user can change the parameters of the experiment to minimize the error [25].

To reach a high degree of accuracy, a good understanding of the mesh is needed. There are several ways software can generate the mesh for the geometry. In CMP, the most used methods are: the hexahedral mesh, tetrahedral mesh, lagrangian mesh, and serendipity mesh. The hexahedral mesh is commonly used in 2D structural mechanics and boundary layer (surface) meshing, where the elements are represented in triangular and rectangular shapes (see Fig. 5).

Next type is the tetrahedral mesh where tetrahedral, pyramidal, or hexahedral is placed on top of the hexahedral surface element to form 3D element (see Fig 5). This type of mesh is used to create 3D mesh and form all the mesh elements [25].

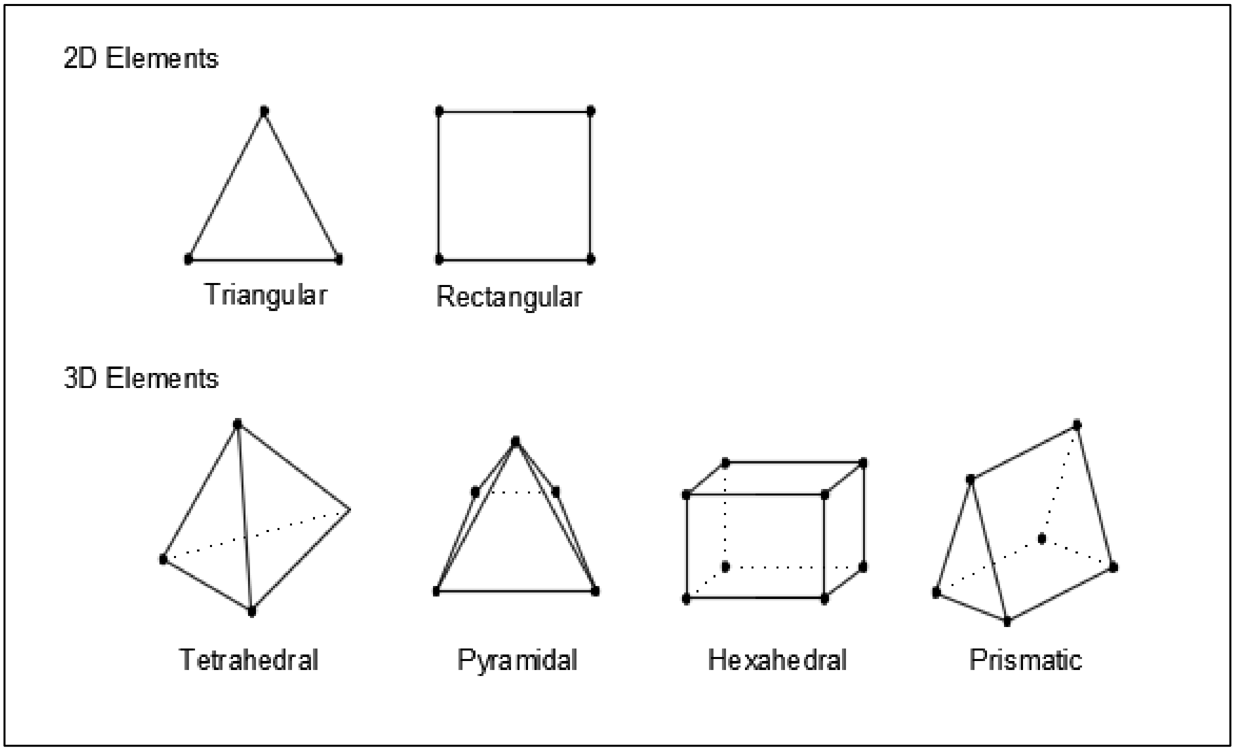

Fig. 5. Mesh elements as first order PDE.

For advanced meshing[13], there is an option to define the mesh as a second order PDE where the edge and elements facing the surface are curved. This mesh referred to as Lagrangian mesh and Serendipity mesh [25]. In this thesis, there was no need to use the lagrangian or serendipity mesh as explained in section 3.5.

[13] Used in extreme fine or user specific defined mesh

3.4 The Process

Creating the geometry was the first step in the simulation. After testing several software for model building, the author has chosen to use Solidworks©. It is far more flexible and easier to use when creating curved 3D models. To analyze the blood flow in the renal artery, a cohesive model is needed. The model was created using statistical data for length and diameters. The geometry design is based on Fig. 2 in section 2.1.3. Three levels of branches are used, starting with the main renal artery, anterior and posterior branches, secondary branches, and third level branches. This model consists of the main renal artery going into the Kidney which branches out to smaller capillaries inside the kidney. Creating the model was the biggest

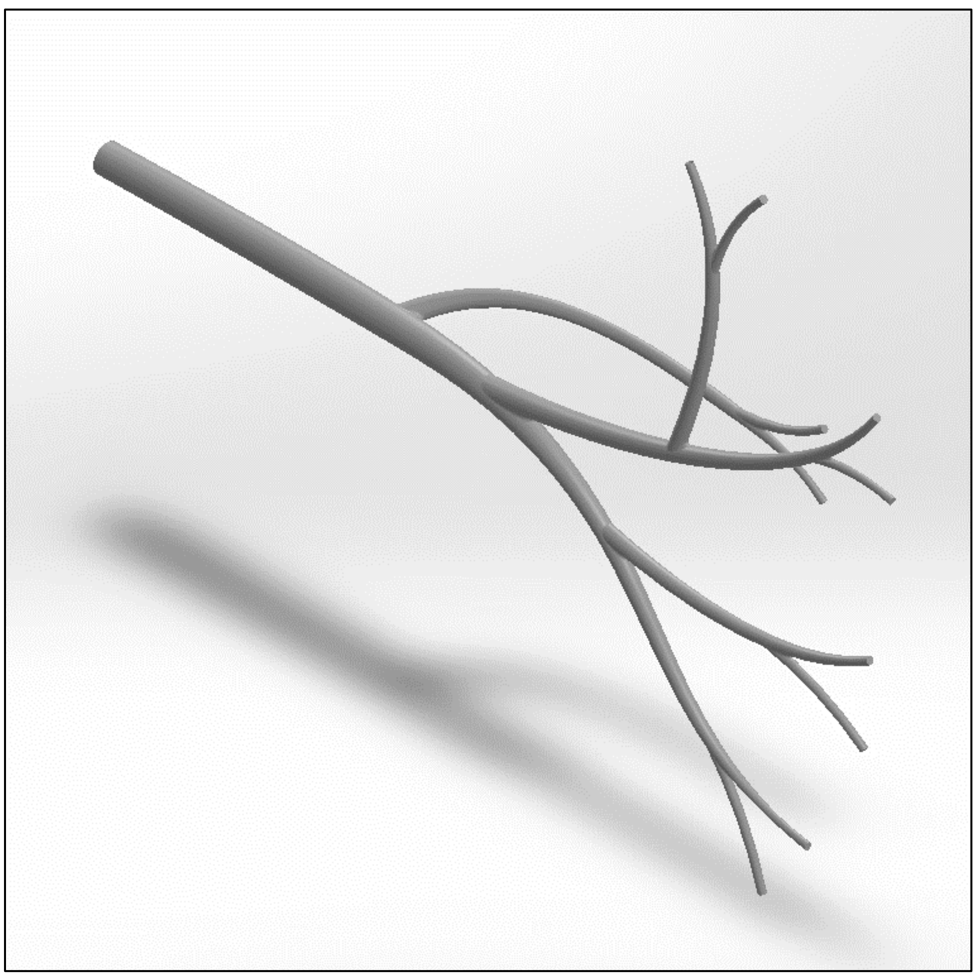

Fig. 6. TRAN – 3D geometry.

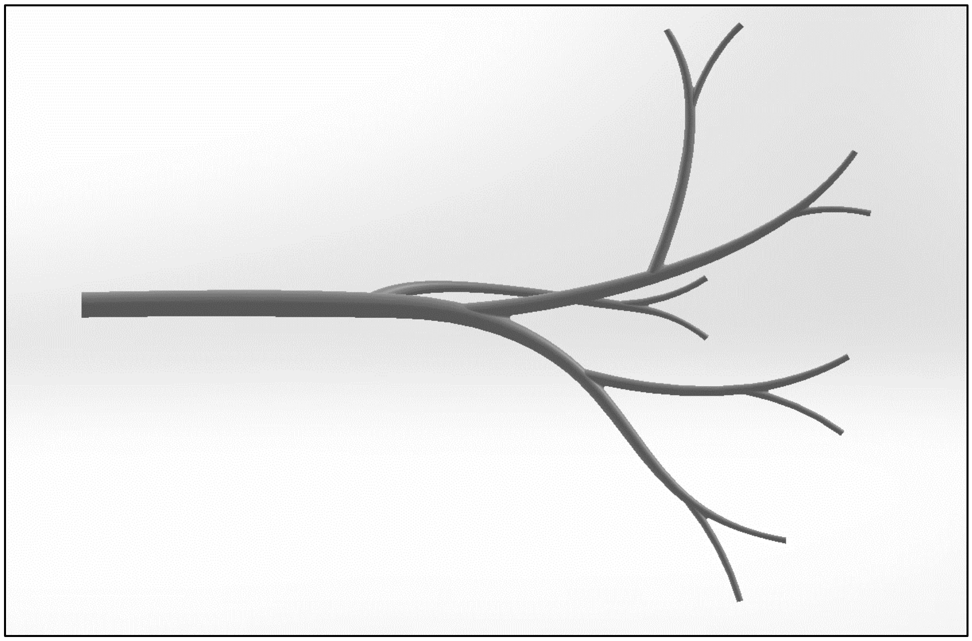

Fig. 7. TRAN – front elevation.

challenge due to all the curves and joints. The step by step tutorial for creating blood vessels in Solidworks© is described in appendix A1. The final geometry for the typical renal artery network (TRAN) is shown in Fig. 6 and Fig. 7. Detailed dimensions for the geometry is shown in appendix 2.

3.5 Experiment Design

The analysis design is based on using the Naiver-Stokes[14] fluid flow equation for a transient flow. Navier-Stokes equations govern the motion of fluids and can be seen as Newton's second law of motion for fluids [26]. The following is the general form of the Navier-Stokes equation:

$$\rho\left(\frac{\partial \boldsymbol{u}}{\partial t} + \boldsymbol{u}\,.\nabla\boldsymbol{u}\right) = -\nabla p + \nabla\,.\left(\mu(\nabla\boldsymbol{u} + (\nabla\boldsymbol{u})^{T}) - \frac{2}{3}\mu(\nabla\,.\,\mathbf{u})\,\mathbf{I}\right) + \boldsymbol{F}$$

[14] Claude-Louis Navier and George Gabriel Stokes.

Where;

u: fluid velocity

ρ: fluid density

p: fluid pressure

I: Inertia force

μ: fluid viscosity

F: External Forces

To explain the Navier-Stokes equation, we must divide it into 4 parts where each one of those terms corresponds to certain type of forces on the fluid;

1) $\rho\left(\frac{\partial \boldsymbol{u}}{\partial t}+\boldsymbol{u}\,.\nabla\boldsymbol{u}\right)$: the inertia forces.
2) $-\nabla p$: the pressure forces.
3) $\nabla\,.\left(\mu(\nabla\boldsymbol{u}+(\nabla\boldsymbol{u})^T)-\frac{2}{3}\mu(\nabla\,.\,\mathbf{u})\,\mathbf{I}\right)$: the viscous forces.
4) F : the external forces applied to the fluid [26]

The previous equation can be simplified, for this research, by eliminating the external forces and the non-Newtonian term to the following equation:

$$\rho\left(\frac{\partial \boldsymbol{u}}{\partial t}+\boldsymbol{u}\,.\nabla\boldsymbol{u}\right)= -\nabla p+\ \mu\nabla\,.\,(\nabla\boldsymbol{u}+(\nabla\boldsymbol{u})^T)$$

Navier-Stokes equation must be used in conjunction with the continuity equation. While Navier-Stokes represent the conservation of momentum, the continuity equation represents the conservation of mass [26].

$$\frac{\partial\rho}{\partial t}+\ \nabla\,.\,(\rho\boldsymbol{u})=\ 0$$

Solving the previous two equations for a uniform shape can be done with some lengthy mathematical calculations, but for non-uniform shapes such as blood flowing in artery network with variable diameter sizes and curved axis line, could be challenging. CMP is being utilized to solve Navier-Stokes for the model numerically. The credibility of the results will be based on the assumptions made and how close they are to the real situation.

The next step is importing the geometry which was created as Parasolid file (*.x_t) into CMP. Several steps needed to be done before importing the geometry which includes setting the units as desired (cm in this case). After the geometry is imported, the mesh is created using CMP meshing[15] tool [27]. An example of the mesh is shown in Fig. 8.

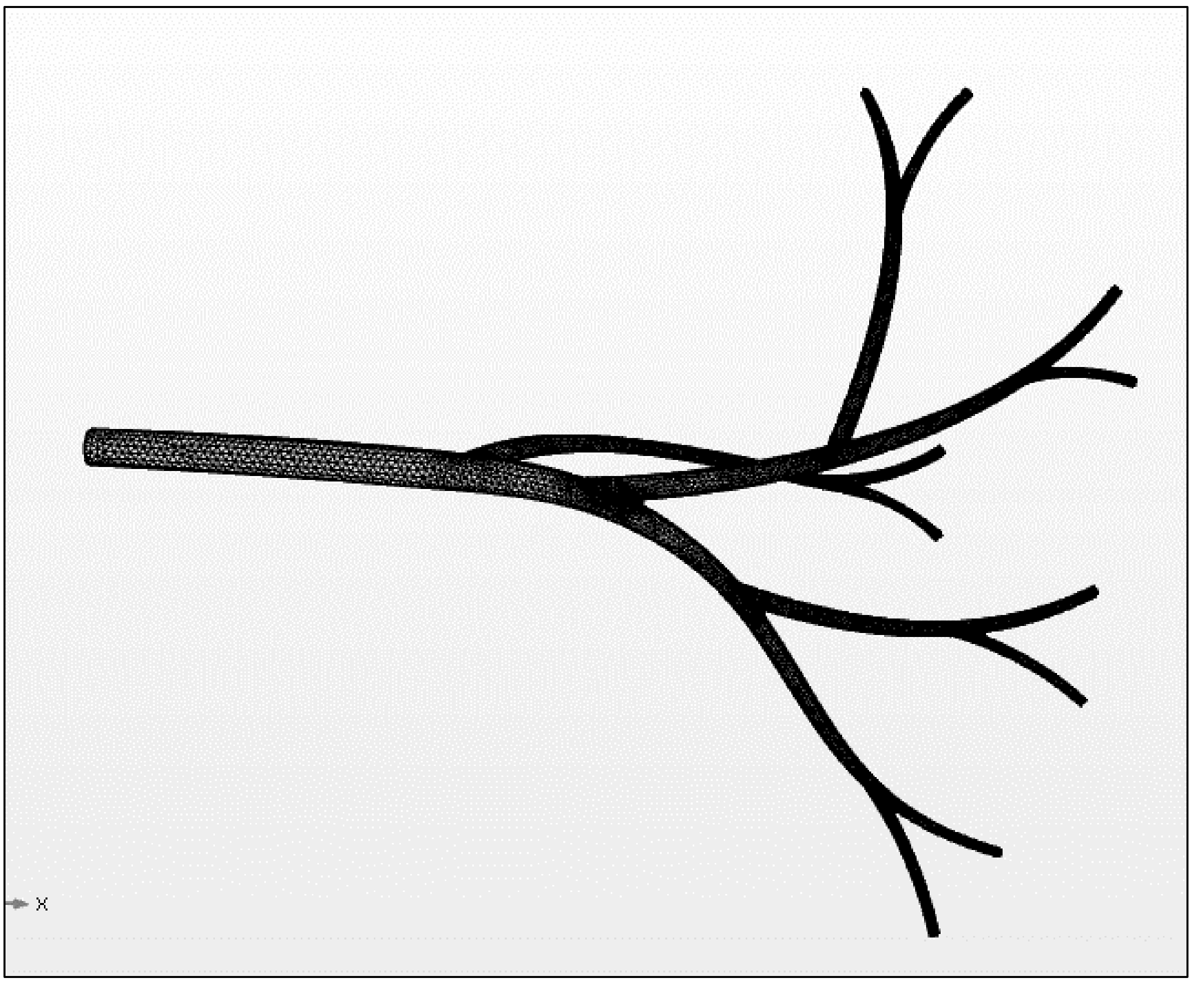

Fig. 8. TRAN – mesh example.

[15] Meshing, as explained in earlier section, is breaking the complex geometry into smaller elements for ease of analysis.

CMP offers two ways for the user to create a mesh; use mesh presets, or user defined mesh. Mesh presets varies based on element size and type from extra coarse to extreme fine. In deciding right mesh for the experiment, an analysis is needed to find out if the selected resolution is sufficient. The same simulation was run on TRAN using several different mesh resolutions starting with the extra coarse. Detailed mesh analysis is shown in Appendix 3.

Extreme coarse, extra coarse, coarser, or coarse meshing attempts were not successful (see appendix 3). The next option is *normal mesh*. The mesh was successful and produced a geometry with 191,145 elements. The simulation was completed successfully in 63 minutes for transient fluid simulations with 28 time intervals on Buddy supercomputer cluster with Hi-memory nodes. The same simulation was repeated using *fine mesh*. A mesh with 625,436 elements was successfully produced. The same simulation was completed in 168 minutes. When comparing the results of the normal mesh and the fine mesh, there was approximately 7% improvement in the results. This is a clear indication that another mesh size needs to be tested for further improvement. The finer mesh was produced with 1,669,359 elements. The same simulation was run again using the new mesh. It was completed in 16hours and 37 minutes. By comparing the results of the fine mesh and the finer mesh, there was less than 1% improvement in the results (examples of the different mesh resolution are shown in Fig. 9).

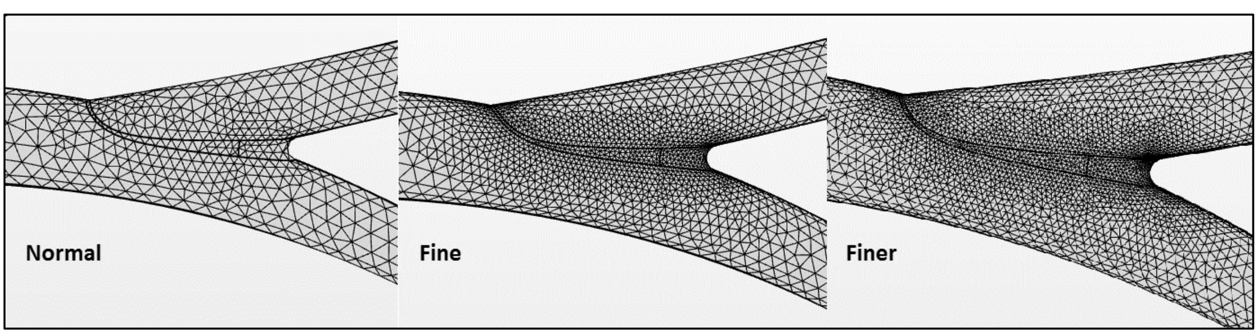

Fig. 9. CMP - mesh analysis.

Plotting the static pressure change for the three mesh resolutions, it clearly shows the difference between normal mesh and fine mesh. Therefore, the fine mesh and the finer mesh are almost identical and the curves almost overlapped (See Fig. 10).

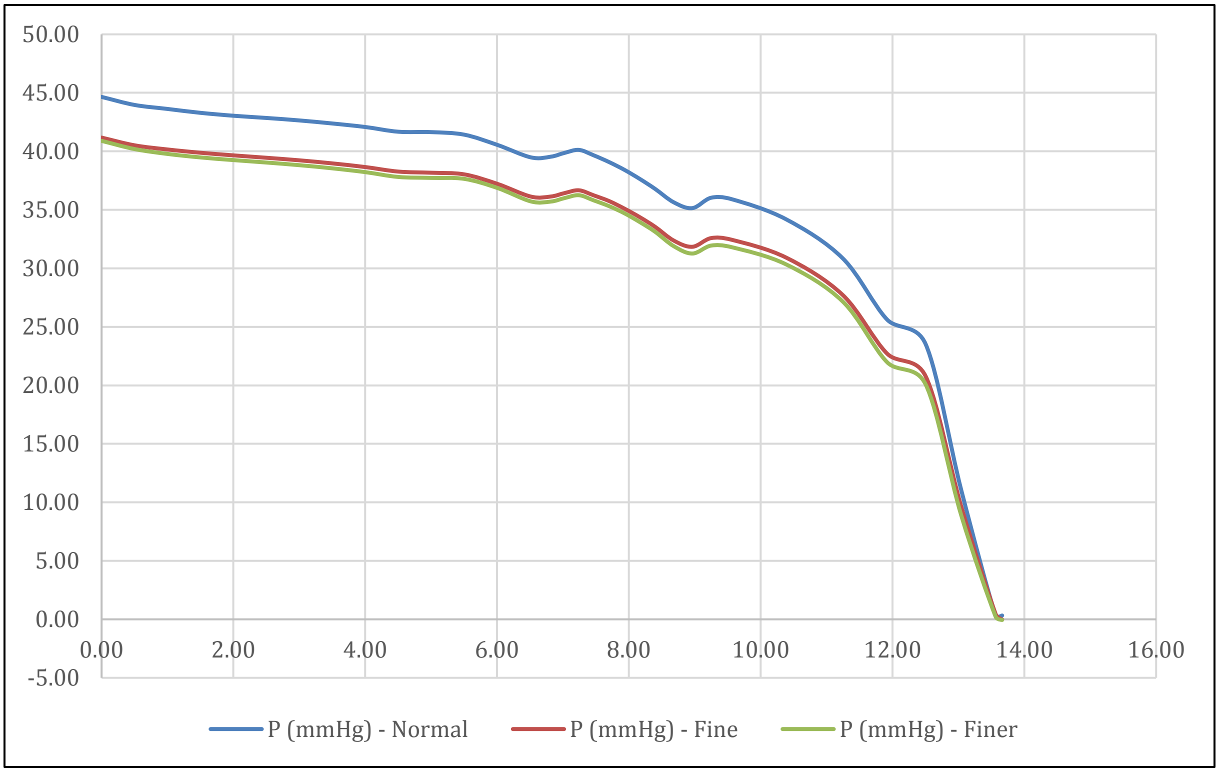

Fig. 10. Mesh resolution analysis - TRAN - branch #2.

Since there is hardly any difference between fine and finer mesh results, the author concluded that *the fine mesh is sufficient* for this research but *opted to use the finer mesh*.

3.6 Assumptions and Boundary Conditions

As it was mentioned earlier, for credible result, the correct assumptions and constraints for our model must resemble real-life situation as close as possible. The following assumptions were used for this study:

1) The blood flow in the human body is considered laminar flow throughout most of the circulatory system. Along the vessel's wall, the blood velocity is zero. It reaches maximum velocity in the center of the vessel [19,26,28]. Sometimes, during the high flow rate, the blood flow in aorta become turbulent and refed to as chaotic flow [14,29].
2) Transient flow as the boundary condition changes with time. It was assumed the blood velocity at the entrance is a function of time to resemble the blood cycle. For this simulation, heart rate of 80 bpm was considered which would make each blood cycle 0.7 seconds. The simulation was run for 2 blood cycles (1.4s) with 0.05s intervals; the

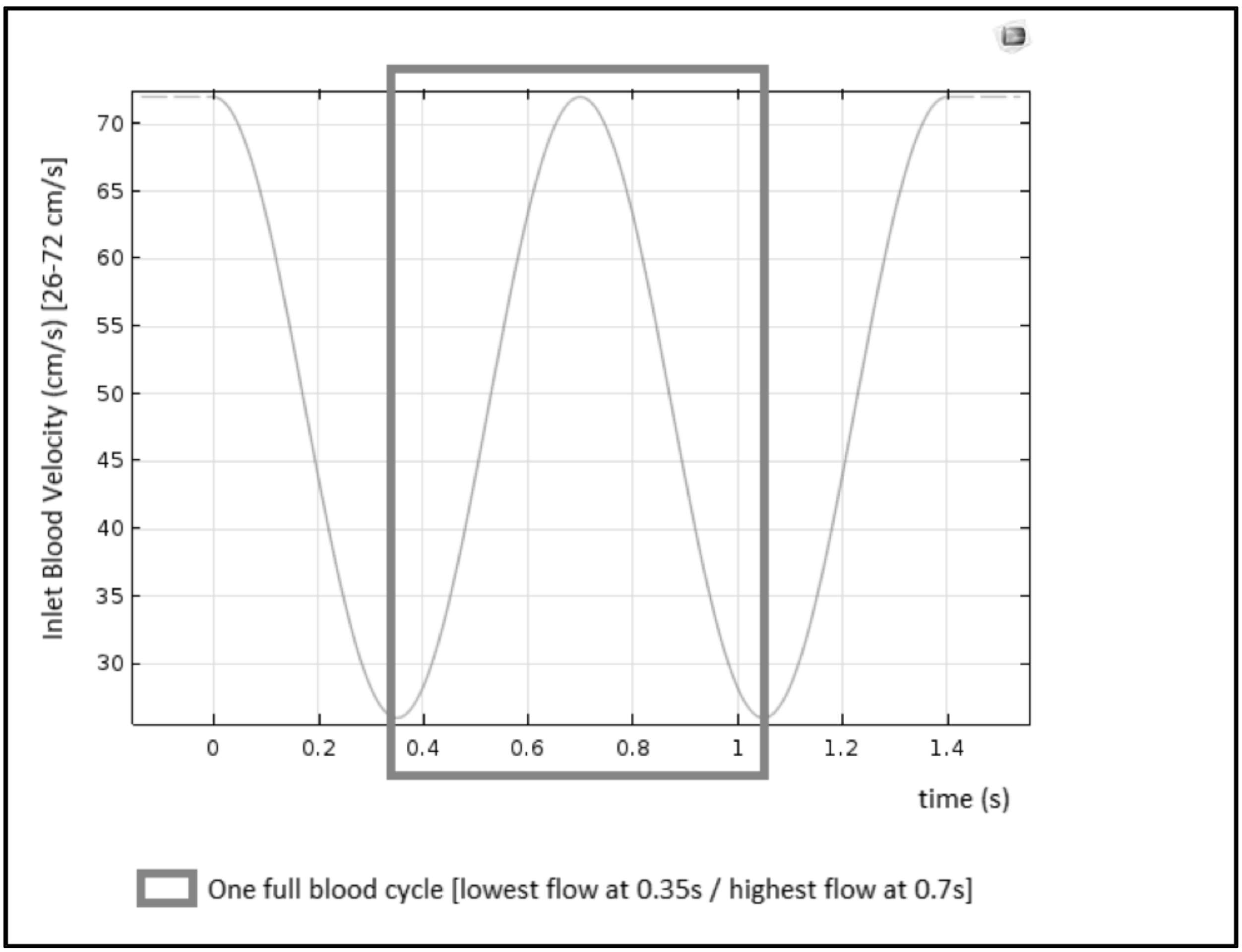

Fig. 11. Inlet blood velocity as a function of time.

results were considered only for the middle cycle (0.35s-1.05s) to make sure the system is already stabilized. The study cycle is shown in Fig. 11.

3) Newtonian flow: this assumption was discussed in section 2.3.2, flow in vivo can be safely assumed to be Newtonian flow for this case. The viscous forces and proportional to the shear rate, therefore there is no apparent deformation in the fluid [19].
4) No slip at the wall: where the blood will have zero velocity at the wall relative to the wall molecules [26,30].
5) Diameter change at each point is ignored. The change in diameter size due to the shear forces is less than 10% at extreme conditions, it was safe to ignore the diameter change only for this study. The reasoning was justified in appendix 4.
6) Blood density ρ = 1,060 Kg/m^3 [6,19,30].
7) Blood Viscosity μ= 0.005 Pa.s [6,19,30].
8) Boundary conditions: inlet/ u = 26-72 cm/s.
9) Boundary conditions: outlet/ p = zero. While the pressure at the exit may not be zero, the need to study the pressure drop justify the use of Zero pressure at the outlet. The resulted pressure at the inlet would resemble the pressure difference between the inlet and the outlet.

With all the parameters set, the model in imported and meshed, the simulation can be run. Each simulation takes an average of 18-24 hours on Buddy cluster with Hi-memory nodes.

3.7 Exporting the Results

With all the various simulations ran already, the results need to be analyzed. With the complicated geometry of the renal artery on hard, it produces over 10 million set of results. To simplify the results, study points are needed. The author has decided to use points along the center axis of the vessels with 5mm intervals in the widespread areas and 2mm intervals in the congested areas. These points are shown in Fig. 12 [31].

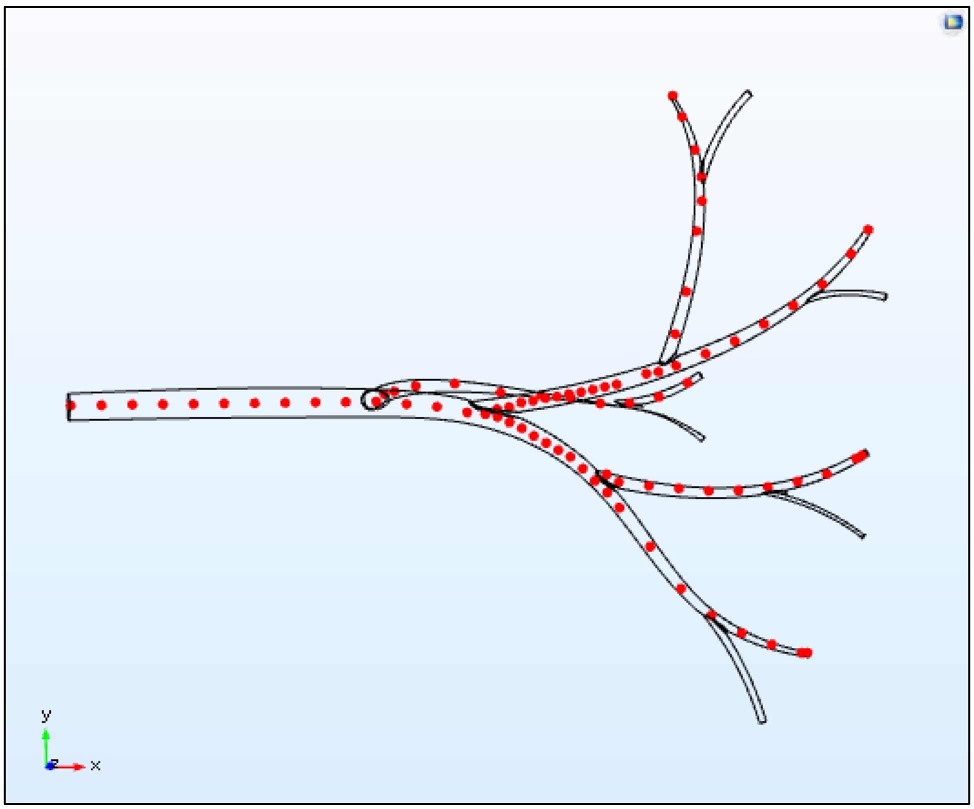

Fig. 12. Locations of study points.

The points were compiled in a text file using X, Y, Z coordinates. The file was imported into CMP and created a cut point for the analysis. The results are then exported as table of points representing (t, X, Y, Z, P, and U) with the following units [s, cm, cm, cm, mmHg, and cm/s]. The results were compiled and analyzed for the five main branches of TRAN network which are shown in Fig. 13.

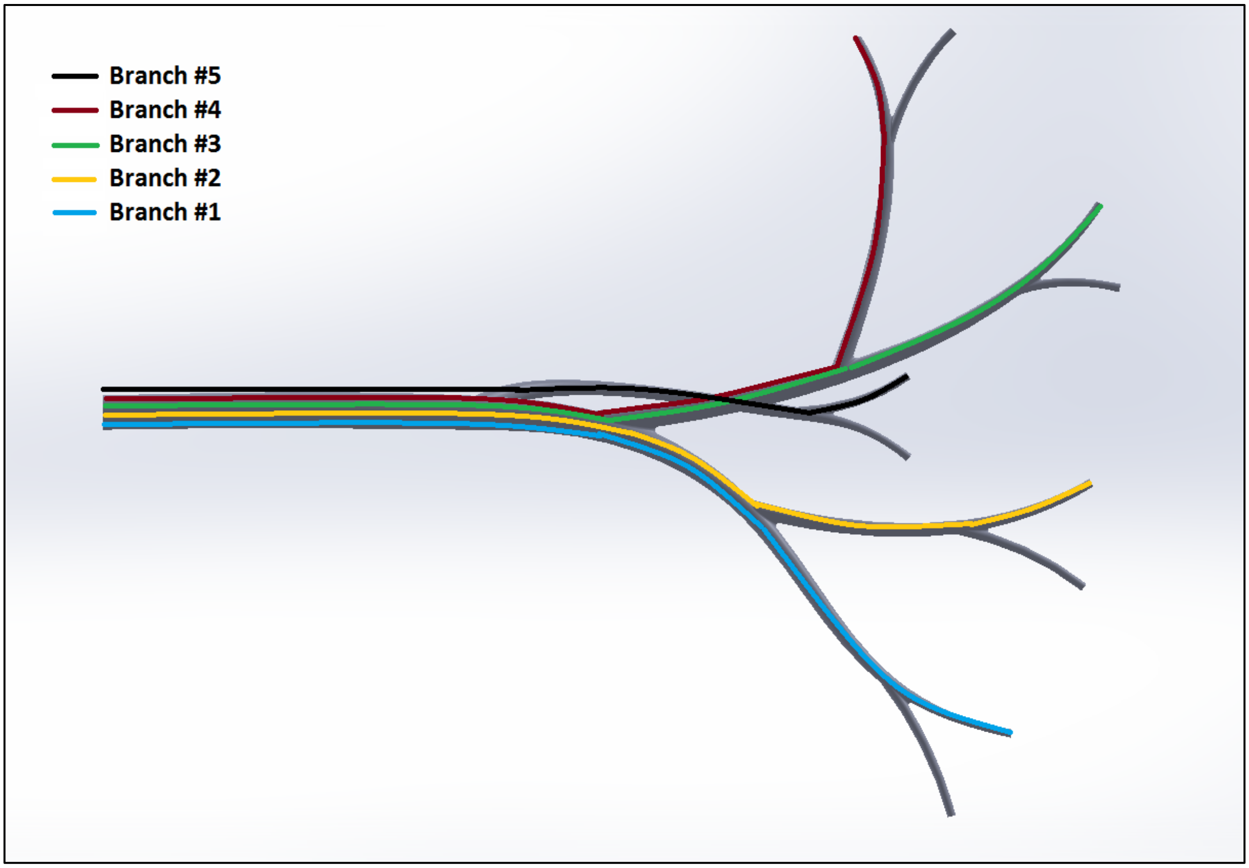

Fig. 13. TRAN - The five branches of the simulation.

The complete processed results showing static pressure P [mmHg] and the velocity magnitude [cm/s] as a function of the artery length for each time interval (0.05second) are shown in appendix 7. These results interpreted and analyzed to understand the blood flow. These data were compared to similar researches for verification and validation [6].

Chapter Four: Results and Analysis

4.1 RAA Location's Results and Analysis

To study the effect of the location of an RAA on the pressure drop of the renal artery, multiple simulations were run for the most frequent RAA locations. These locations were (shown in Fig. 14) based on previous studies [6]. The geometry for these locations are represented in Fig. 15.

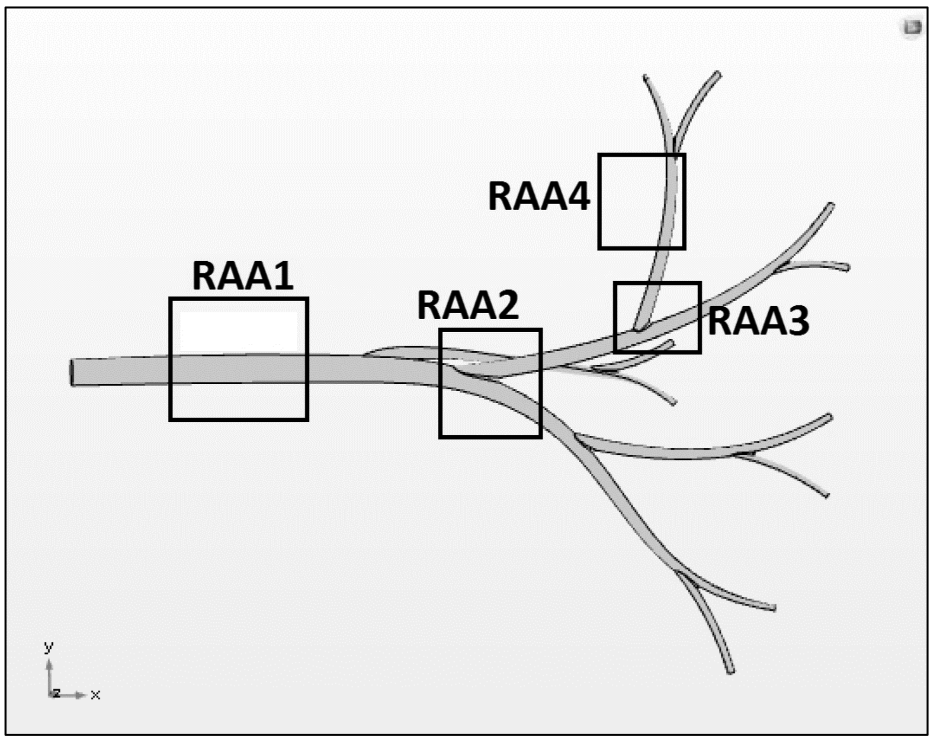

Fig. 14. Location of the four most common RAA.

The data from the simulations are analyzed and compared with TRAN. Complete data for the simulation are shown in appendix A7.3, 4, 8, 9, &10. Plotting the data for a particular branch with the four-different location of an RAA and TRAN could help compare the pressure change for the different location. In this part of the study, the static pressure [mmHg] for RAA

1, 2, 3, 4, and TRAN are plotted for branch #2 at the lowest blood flow (t=0.35s) and the highest blood flow (t=0.7s) versus the length [cm]. These plots are shown in Fig. 16 and 17 respectively.

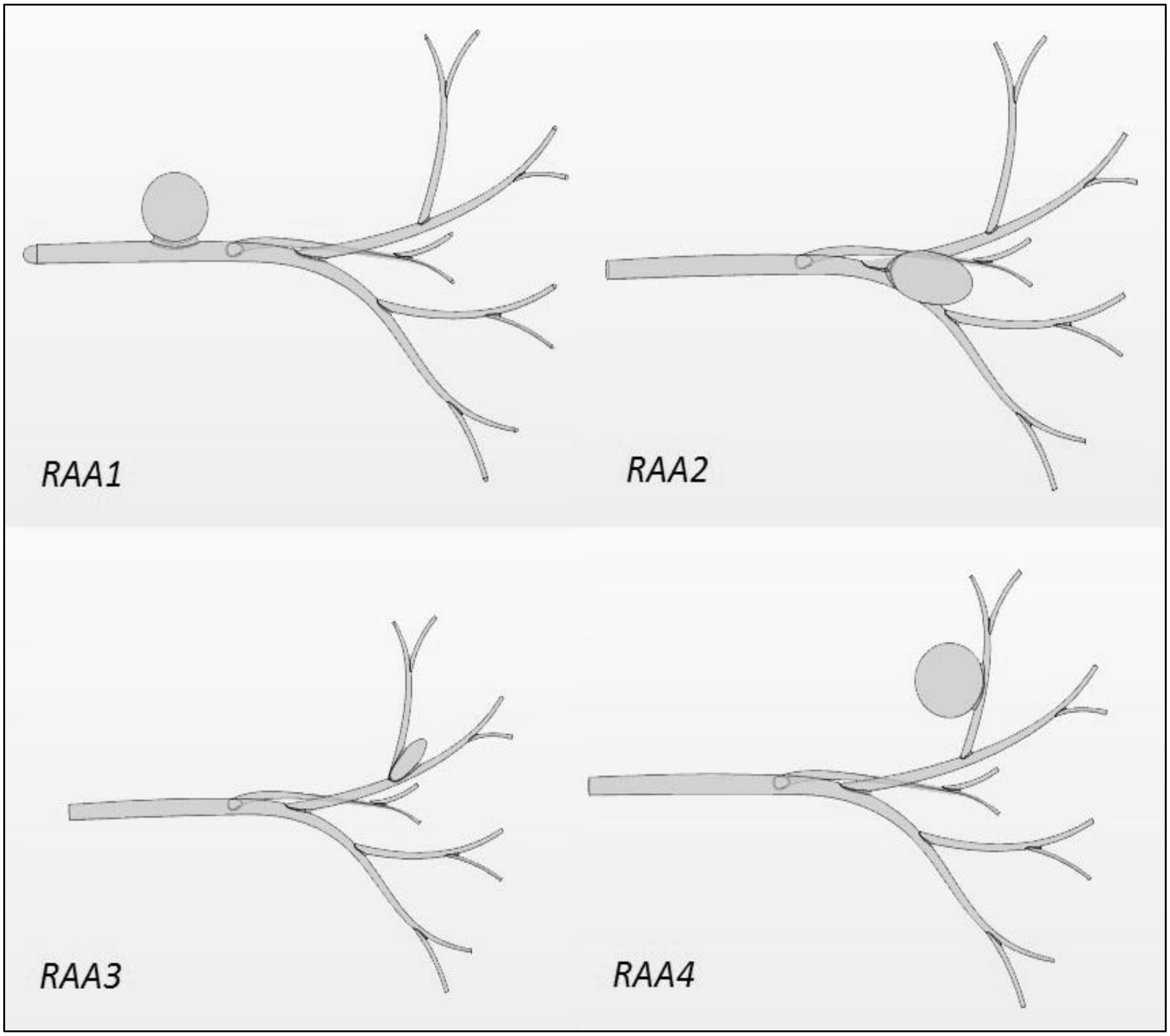

Fig. 15. Geometry for RAA1, 2, 3, & 4.
RAA1 and RAA4 are saccular. RAA2 and RAA3 are fusiform.

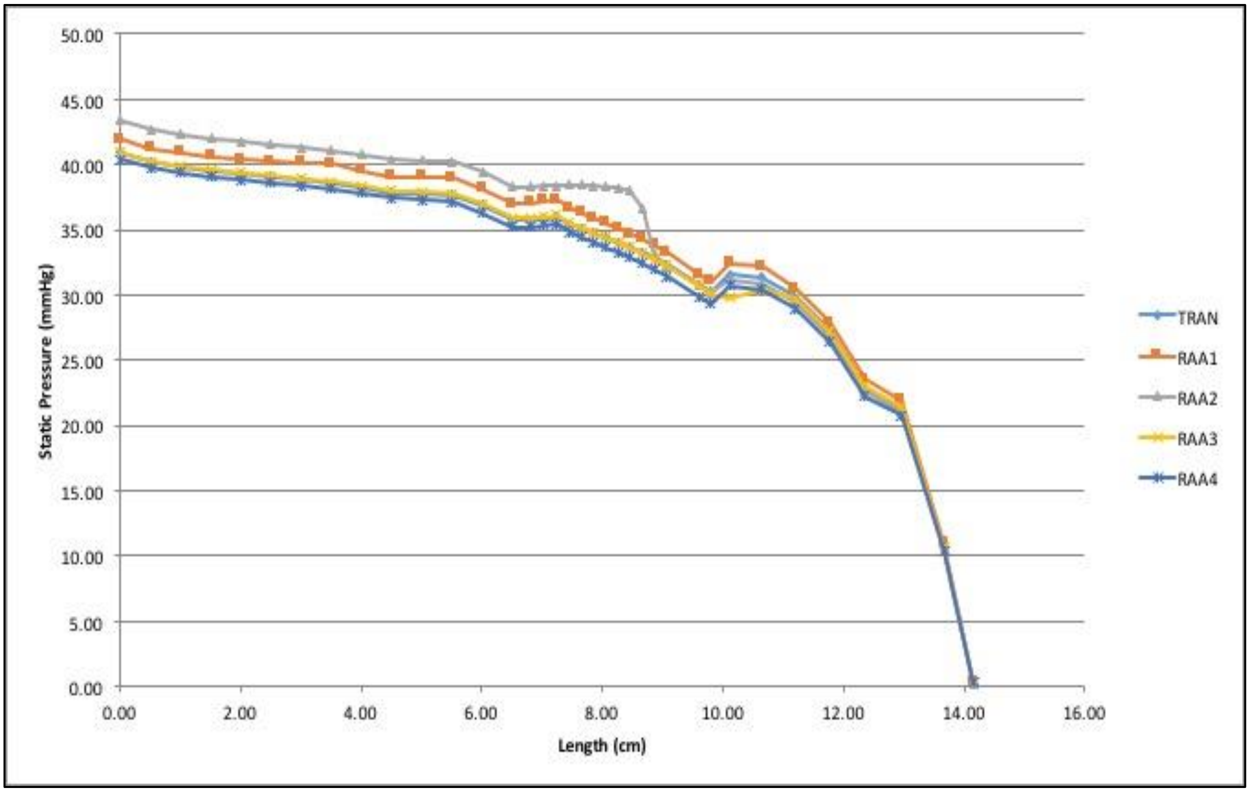

Fig. 16. Branch #2 pressure change/ RAA location comparison for the highest blood flow.

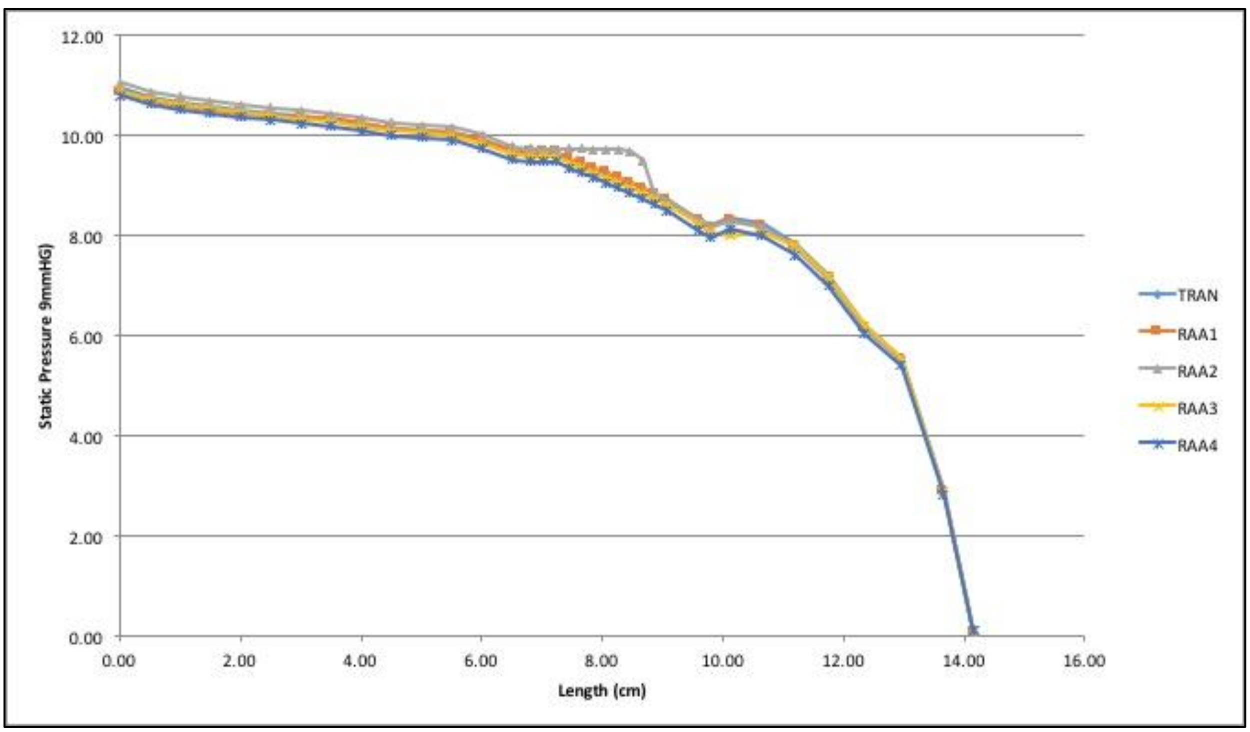

Fig. 17. Branch #2 pressure change/ RAA location comparison for the lowest blood flow.

Each one of the lines has a different starting pressure, it was not easy to compare the pressure drop. The previous plots have been adjusted to reflect a pressure drop rather than pressure change. The value of the pressure on the inlet is adjusted to zero and all the other data are adjusted, accordingly, with the same amount. The new plots are shown in Fig. 18 and 19 respectively.

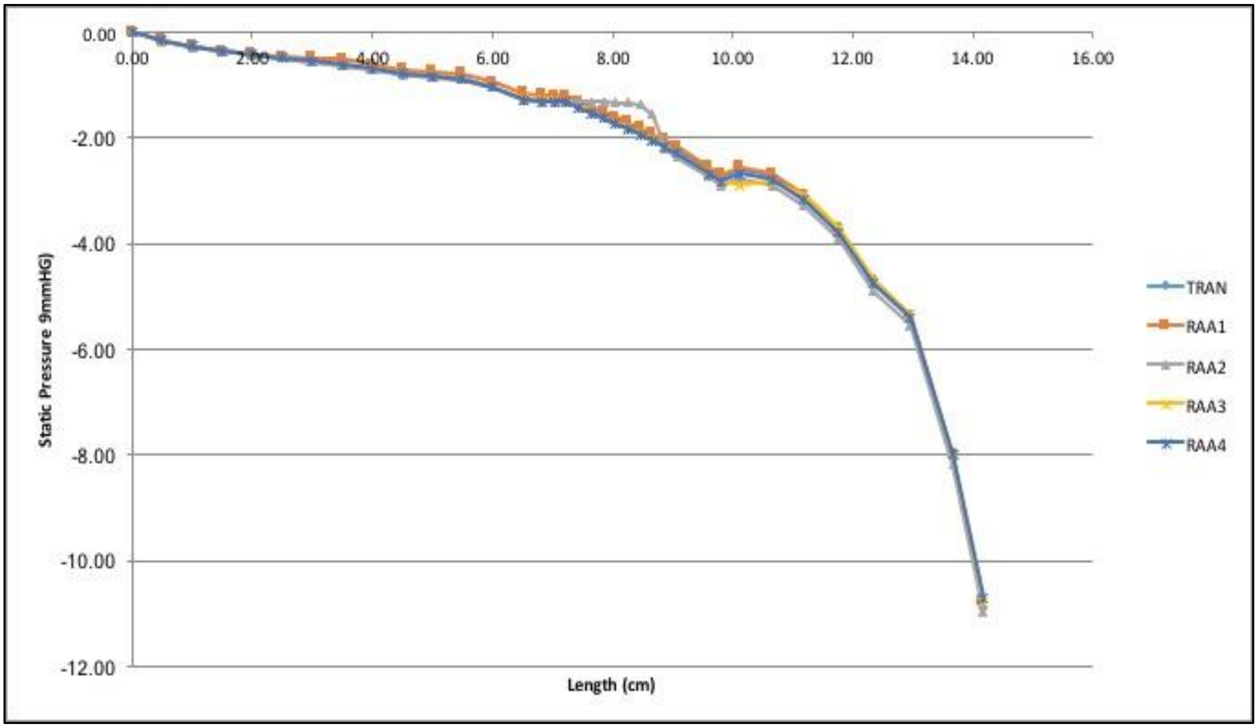

Fig. 18. Branch #2 pressure drop/ RAA location comparison for the lowest blood flow/ adjusted.

With the new plots completed, the results can be interpreted easier. Looking at Fig 18, for the lowest blood flow, the curves overlapped and there is no notable difference in the pressure curve. Upon closer look at the curves, there is a very small difference in the magnitude of 10^{-1}. With that, It was concluded that the location of an RAA doesn't play any factor on the pressure drop at the low flow rate.

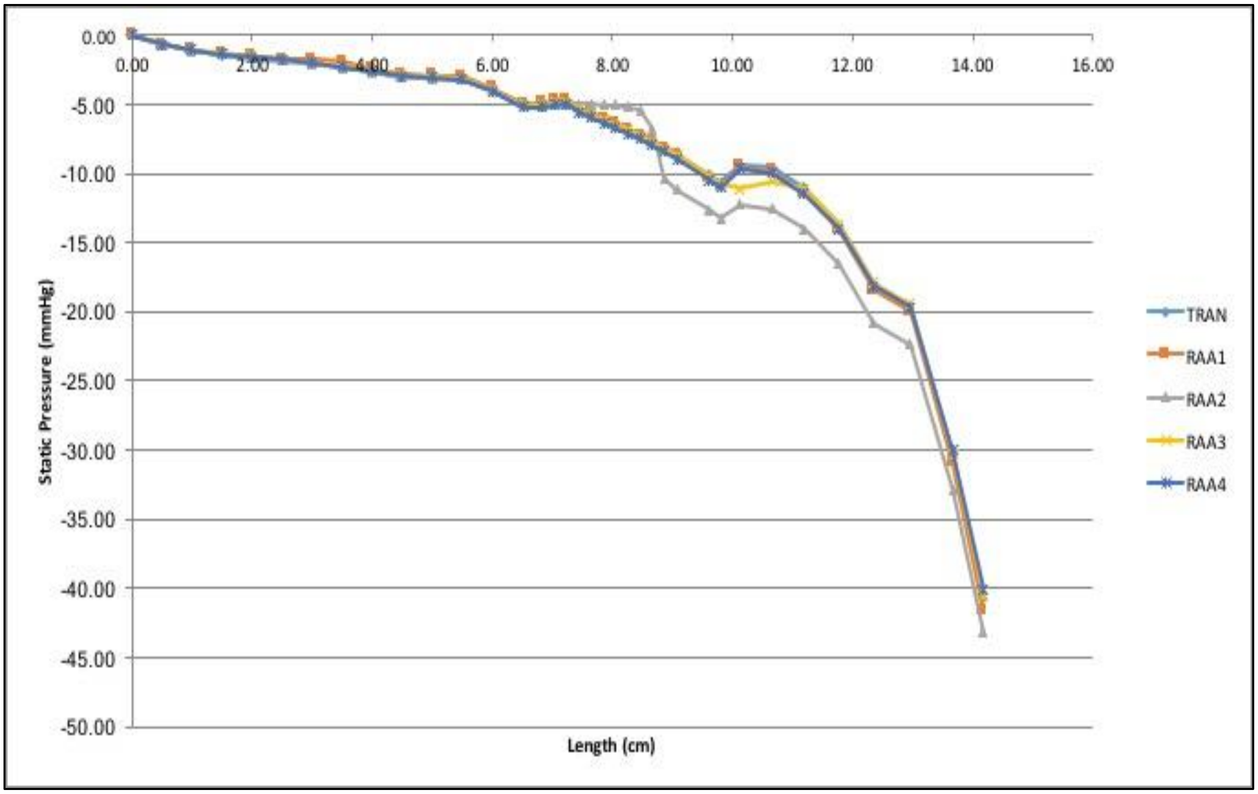

Fig. 19. Branch #2 pressure drop/ RAA location comparison for the highest blood flow/ adjusted.

From the next plot (seen in Fig 19), as the blood flow increase to the highest of 72cm/s at the inlet, the pressure difference begins to be more noticeable. The curves start to spread out and the effect of an RAA on the Static pressure can be seen. The biggest pressure drop happens in the case of RAA2 where there is an additional 4mmHg drop compared with TRAN. The next big drop happens on a scale in the case of RAA3 with a pressure drop of less than 1mmHg. In either case, it seems that the pressure curve re-adjusts back to line up with TRAN Pressure curve. It can be concluded from the previous analysis that RAA location influences the pressure drop. RAA located on the junctions (intersection) have the biggest effect, with the one on bigger branch could be more extreme. Complete set of plots for the different branches are shown in appendix A5.1.

4.2 RAA Size's Results and Analysis

In this section, another characteristic of RAA is being evaluated. From the previous section, it was noted that RAA2 has the biggest effect on static pressure drop. For that reason, RAA2 is simulated again with different growth rate. The static pressure [mmHg] for RAA2 at 10%, 35%, 75%, & 100% versus the length or the artery [cm] is plotted and compared with TRAN. Complete data for the simulation are shown in appendix A7.3, 5, 6, 7, & 8. Just like in the previous study, the first set of plots for the pressure change wasn't very useful. Therefore, the plots have been adjusted to show zero pressure at the inlet for the lowest and the highest blood flow. These plots are shown in Fig. 20 and 21 respectively.

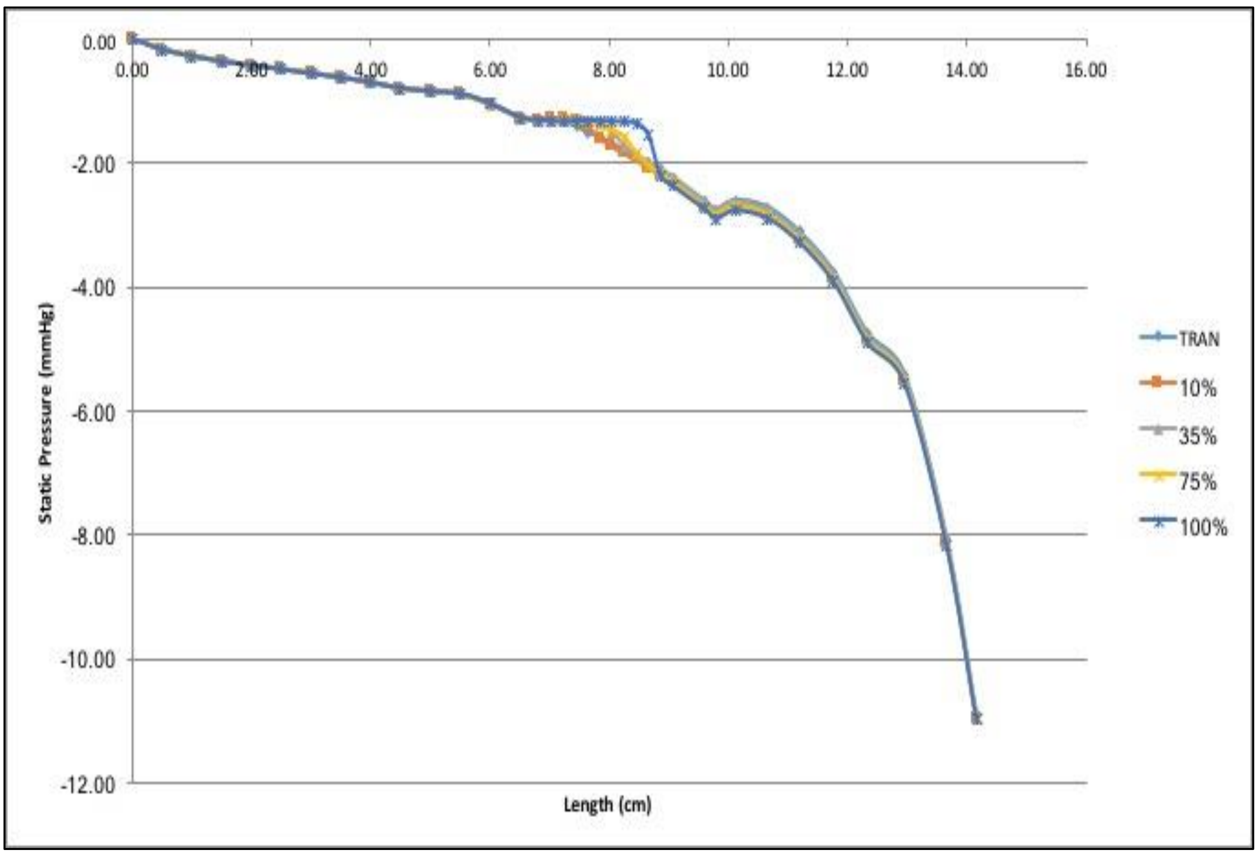

Fig. 20. Branch #2 pressure drop/ RAA2 size comparison for the lowest blood flow/ adjusted.

By examining the plot for the pressure drop of the various growth size at the lowest flow rate (see Fig. 20), the curves overlapped and it was hard to distinguish between them. All five curves behave similarly with different slopes in every section representing, only, the change of the diameter in the branch.

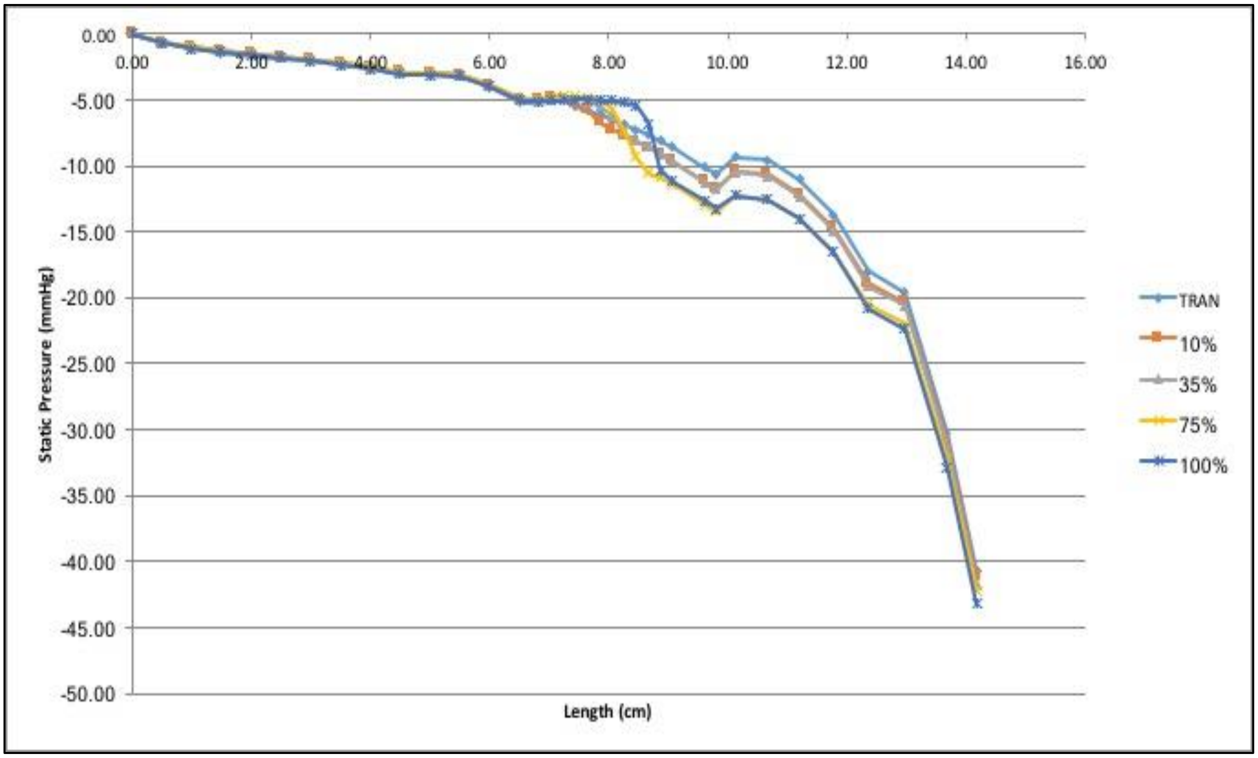

Fig. 21. Branch #2 pressure drop/ RAA2 size comparison for the highest blood flow/ adjusted.

The next plot represents the static pressure [mmHg] for the different growth rate at RAA2 versus the artery length [cm] at the highest flow rate (see Fig. 21). In this case, the curves are spread out more and it is easier to distinguish in between them. It seems like, as the size of an RAA increases, the pressure drop increases. It is also noticeable that 75% and 100% curves are identical except that the drop happens at slightly shifted location. The magnitude of the additional pressure drop could be up to 4mmHg in this case. It seems that all the curves re-adjust back to the TRAN curve. It can be concluded that as an RAA size increases, it is accompanied with an additional pressure drop. At a certain point (approximately 75% of the final size), the size no longer a factor except there is a shift in the location of the drop. Complete set of plots for the different branches are shown in appendix A5.2.

4.3 Blood Cycle's Results and Analysis

The third criteria need to be explored is the effect of the flow rate on the static pressure drop. From the previous two sections, it was concluded that at low blood flow, there is a very minor pressure drop equal or less than 0.1mmHg while at the highest flow rate, there is a noticeable pressure drop could be up to 4mmHg. To confirm the findings, the static pressure [mmHg] is plotted for a particular branch (branch #2 in this case with RAA2 at 100%) versus the length of the artery [cm] for each time interval (see Fig. 22). Note that each time interval represents a different flow rate increasing from 26cm/s at t=0.35s up to 72cm/s at t=0.7s with 0.05 s intervals.

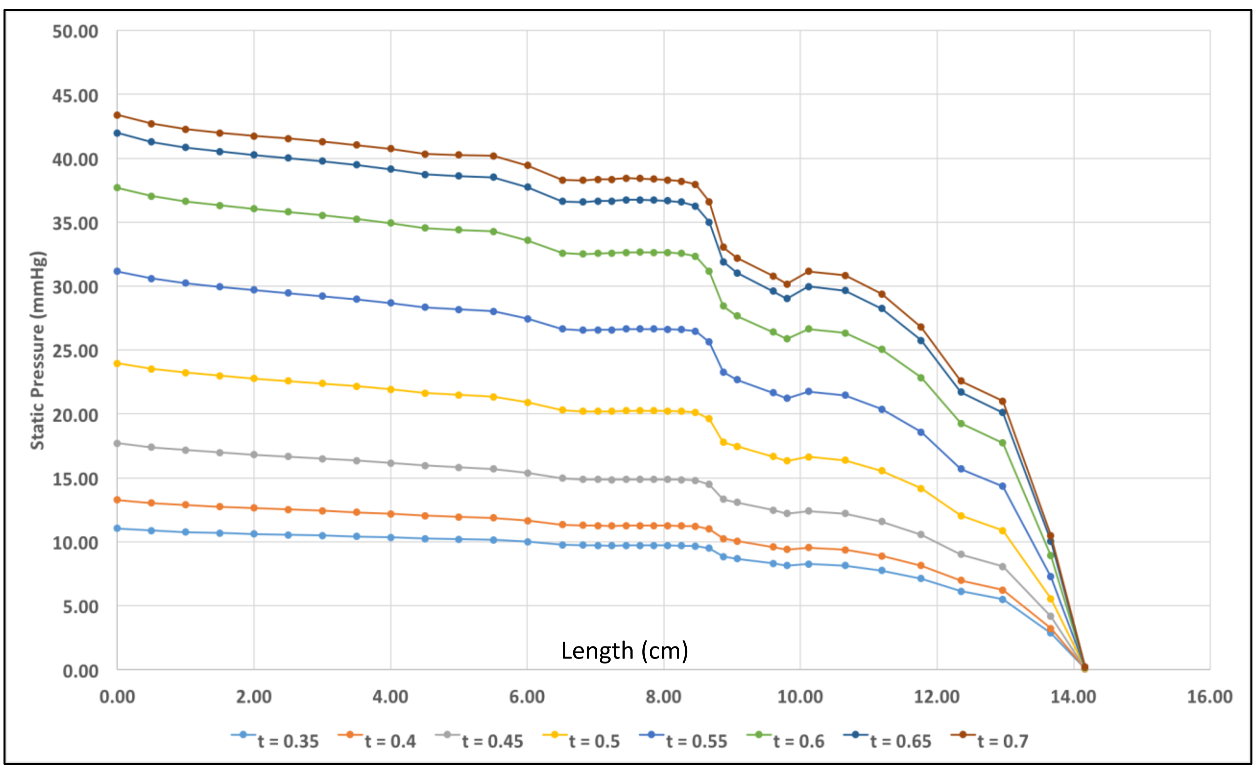

Fig. 22. Branch #2/ pressure change/ blood flow comparison.

The previous plot can be understood easier if it was adjusted to have similar start point at the inlet (zero). The new adjusted plot is shown in Fig 23.

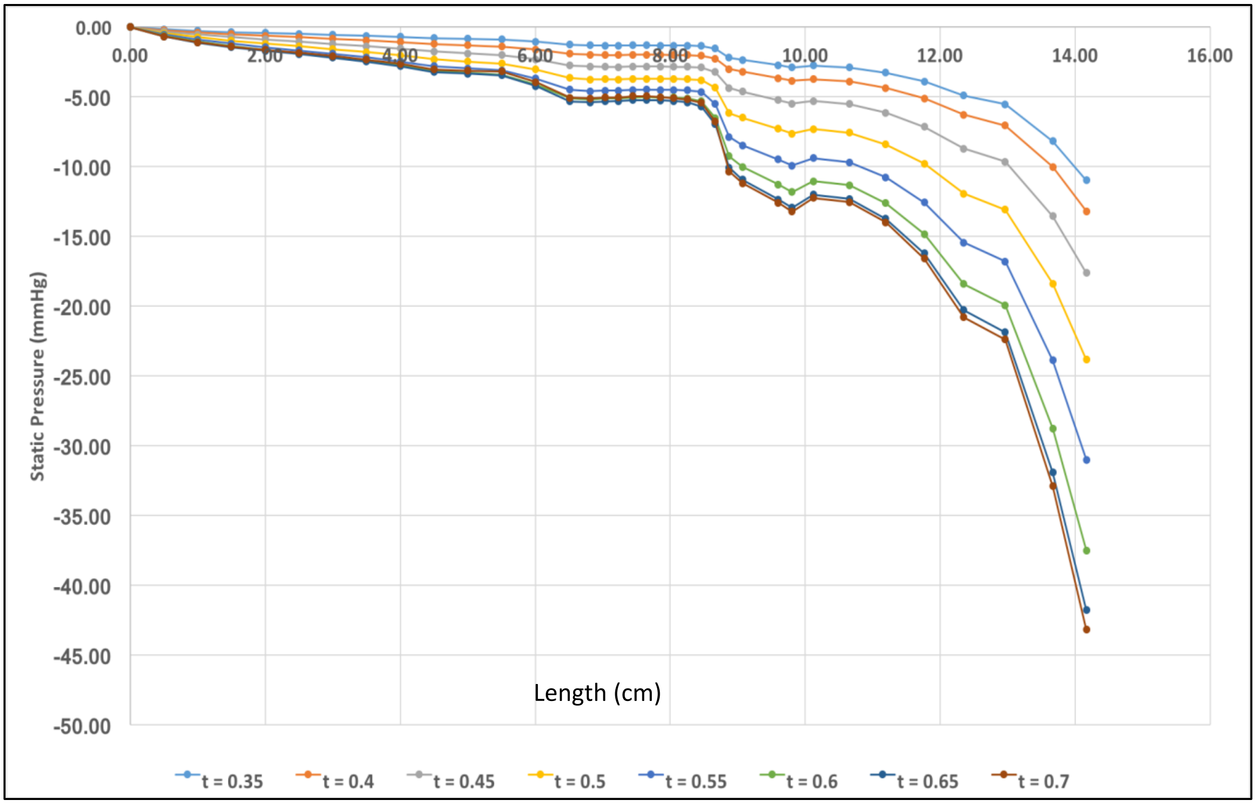

Fig. 23. Branch #2/ pressure drop/ blood flow comparison/ adjusted.

From the adjusted plot, the pressure drop in the arteries behave as expected. The pressure drop increases as the blood flow rate increases with the maximum happens at the highest blood flow rate. Each one of these curves has multiple slopes representing the change in diameter. There is a sharper pressure drop around an RAA location where the drop is almost instant. It is very noticeable that at lower flow rate, the curve become flatter with minimum change in slopes.

4.4 Extreme Case's Results and Analysis

Based on the simulations, plots, and analysis in the previous three sections it was found that the extreme case of renal artery aneurysm (X-RAA) happens at RAA2 (for the extent of this study) at full growth, with the highest blood flow rate. Therefore, in this section, X-RAA is explored further to understand the mechanics of the blood flow in and around the aneurysm.

The geometry for the study of X-RAA is shown in Fig. 24 and 26. From statistical date, the size of the aneurysm can reach 2.6cm [31-33]. The study case in this example is fusiform type aneurysm.

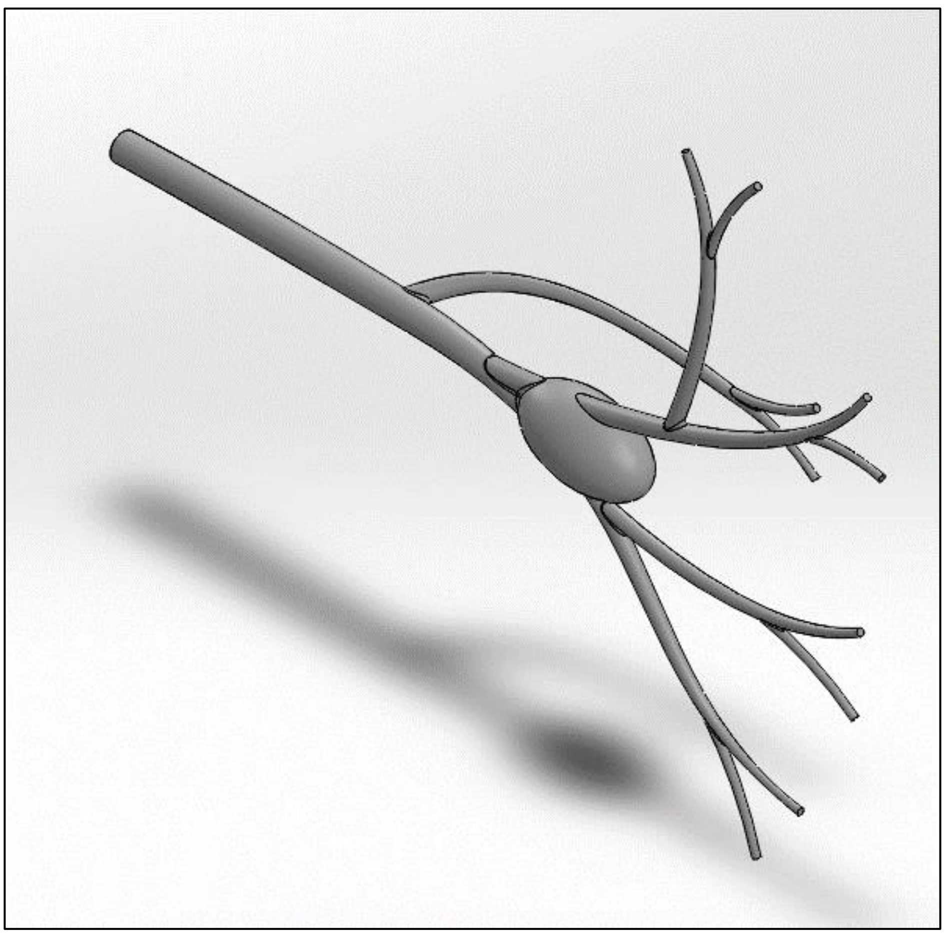

Fig. 24. X-RAA - 3D view.

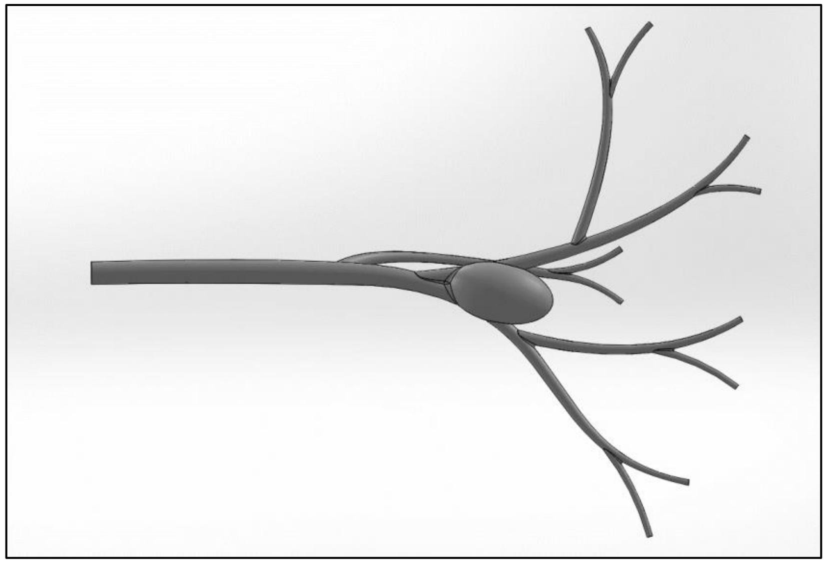

Fig. 26. X-RAA - front Elevation.

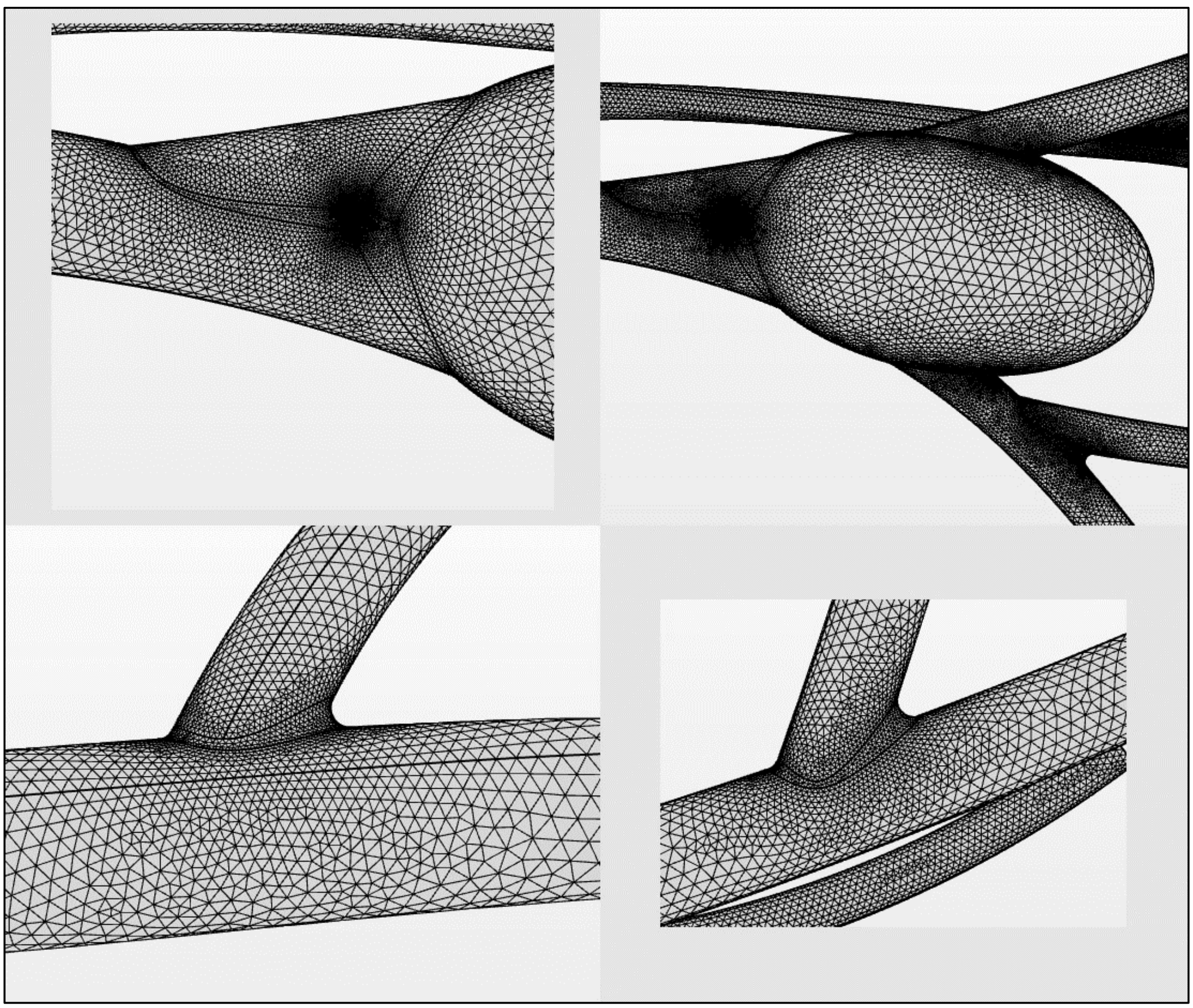

Fig. 25. X-RAA finer mesh details.

The mesh was created using CMP meshing tools. The geometry produced a model with 2,171,010 domain elements, 144,454 boundary elements, and 6,503 edge elements using the finer mesh (see Fig. 25 for mesh details).

After running the simulation (approximately 22 hours and 37 minutes) on Buddy supercomputer with Hi-memory nodes, the results were exported for analysis of the desired data. A plot was, then, developed to show the static pressure drop [mmHg] for each branch (1-4 / #5 can be ignored since there is no effect) along the length [cm] of the artery at X-RAA (see Fig. 27).

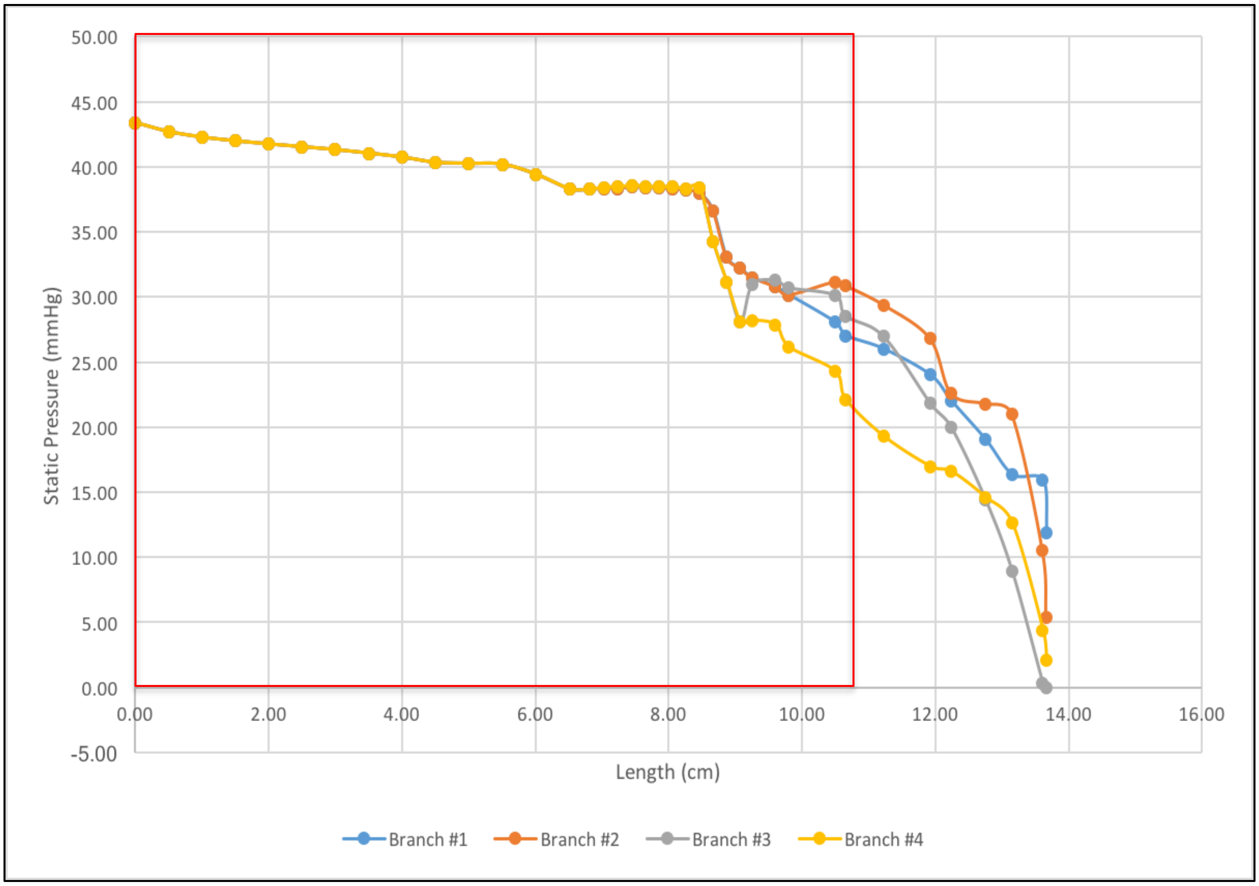

Fig. 27. X-RAA/ maximum pressure drop for all the relative branches (1-4).

From the previous figure, there is a noticeable pressure drop in each branch due to an aneurysm. Some of the drops are more significant than the others. By considering the pressure drop along the main renal artery only, the pressure drop for branches #1, 2, & 3 are approximately 14mmHg. This pressure drop is significant but not enough to trigger RAAS. The pressure drop at the branch #4 is approximately 20mmHg. This drop is significant and could potentially trigger RAAS to react. Consequently, it could develop secondary hypertension.

To confirm the previous results, it was important to look at the average[16] pressure drop along the renal artery. The static pressure drop (mmHg) for each branch (1-4 / ignore #5) along the length of the artery at X-RAA was plotted (see Fig. 28).

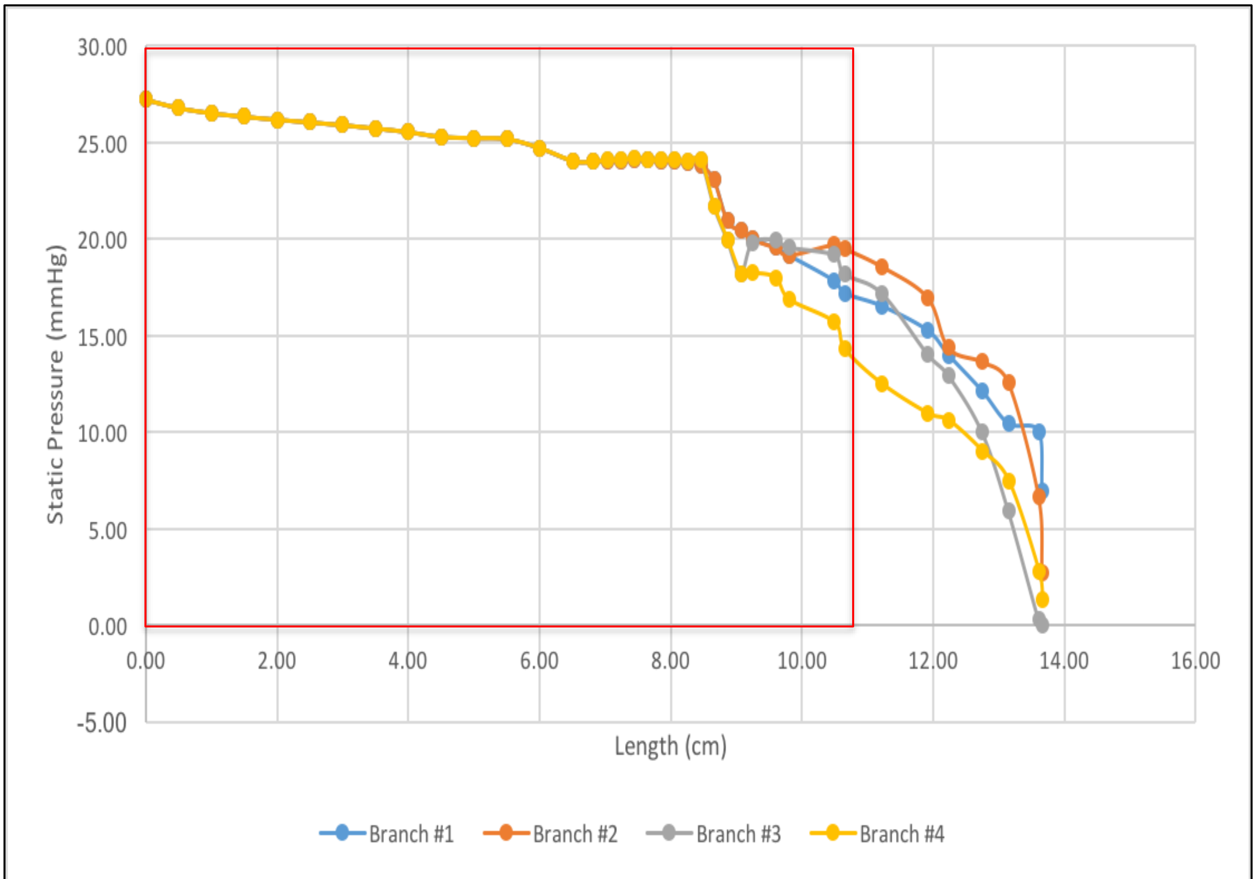

Fig. 28. X-RAA/ average pressure drop for all the relative branches (1-4).

[16] Average pressure was calculated by averaging the values at the highest and lowest blood flows. These values were approximately equal to the pressure value at midpoint in the cycle.

From the previous figure, there is approximately 11mmHg average pressure drop on branch #4. That magnitude of pressure drop is big enough to trigger RAAS to react. Since the pressure drop is already known in the branch, what is the cause for such a big pressure drop? To answer this question, several other parameters need to be examined. The data for all the points inside the X-RAA was exported and analyzed. The total number of date points was more than 10 million data set (points) for the entire network. Since our interest is only inside an RAA, the data were filtered based on known coordinates to eliminate all data outside the study area. The final number of data was 166,662 data set (points).

The maximum and average pressure [mmHg] inside an RAA were plotted throughout the time cycle (see Fig. 29). The two curves are identical in behavior and both values are very close in magnitude. This suggests that the pressure magnitude inside an RAA is uniform. The

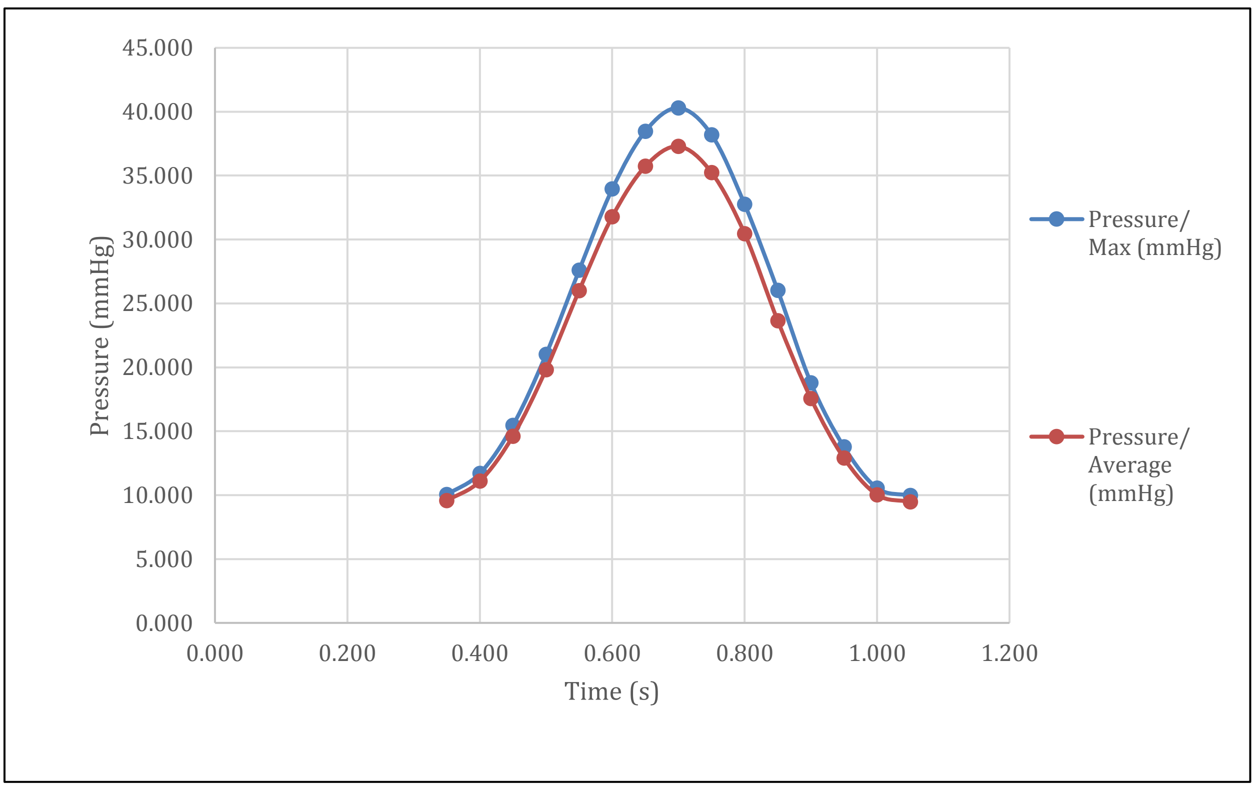

Fig. 29. Inside X-RAA/ maximum and average pressure drop throughout the blood cycle.

pressure difference in between the points increases as the blood flow increases with no sudden spikes. The pressure sequence in the appendix A6.4 confirms the findings.

Next parameter to be considered is the velocity magnitude. By plotting the maximum and average velocity inside an RAA, they behave very similarly. There is an increase in magnitude with the increase of blood flow. But there is a big difference in values (see Fig 30). At the highest blood flow, the average velocity inside an RAA is approximately 38cm/s while the maximum velocity is 158cm/s. This suggests that there are sudden spikes and certain areas and the velocity magnitude is not uniform.

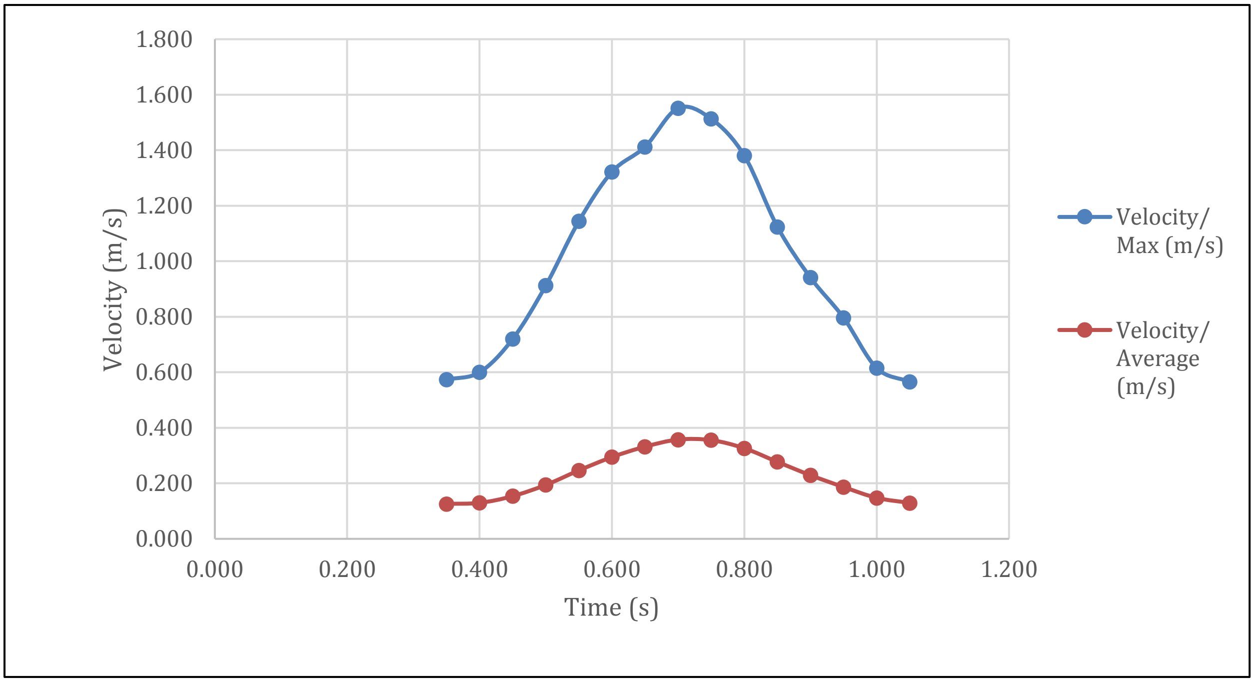

Fig. 30. Inside X-RAA/ maximum and average velocity magnitude throughout the blood cycle.

To explain the big difference, another source of data is needed. Looking at the partial velocity sequence[17] shown in Fig. 31, there is a noticeable increase in velocity in the center of an RAA as the blood flow increases. The blood flow from the renal artery enters an RAA at

[17] Sequence are set of consecutive images developed by the author of this research to better understand the change in the physical parameter.

higher velocity till it reaches at the wall of an RAA on the far end where there is a big change in direction and loss of energy. For complete sequence refer to appendix A6.2. At the lowest blood flow, there is very minor difference in velocity magnitude between the flow entering the aneurysm and the blood inside the aneurysm.

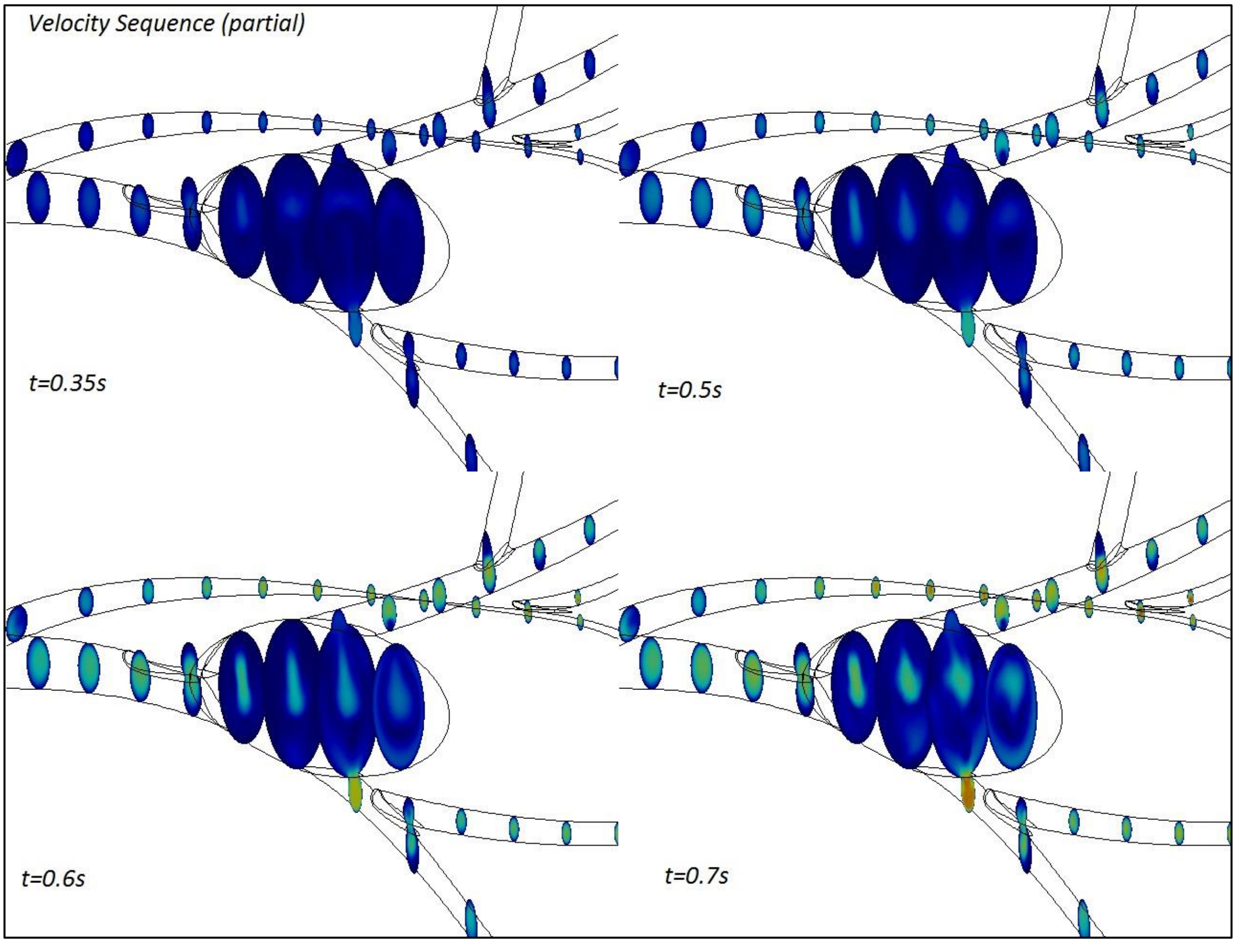

Fig. 31. X-RAA/ velocity magnitude partial sequence / t=0.35s, 0.5s, 0.6s. & 0.7s.

Another helpful criterion is the streamlines (see Fig. 32) which shows how there is a sharp bend and reverse when the flow reaches the back wall of an RAA at the highest flow rate. There are also some minor circulations inside an RAA. With all this change of direction, there is a loss of energy which causes loss in pressure (pressure drop). Complete Streamlines sequence are shown in appendix A6.3.

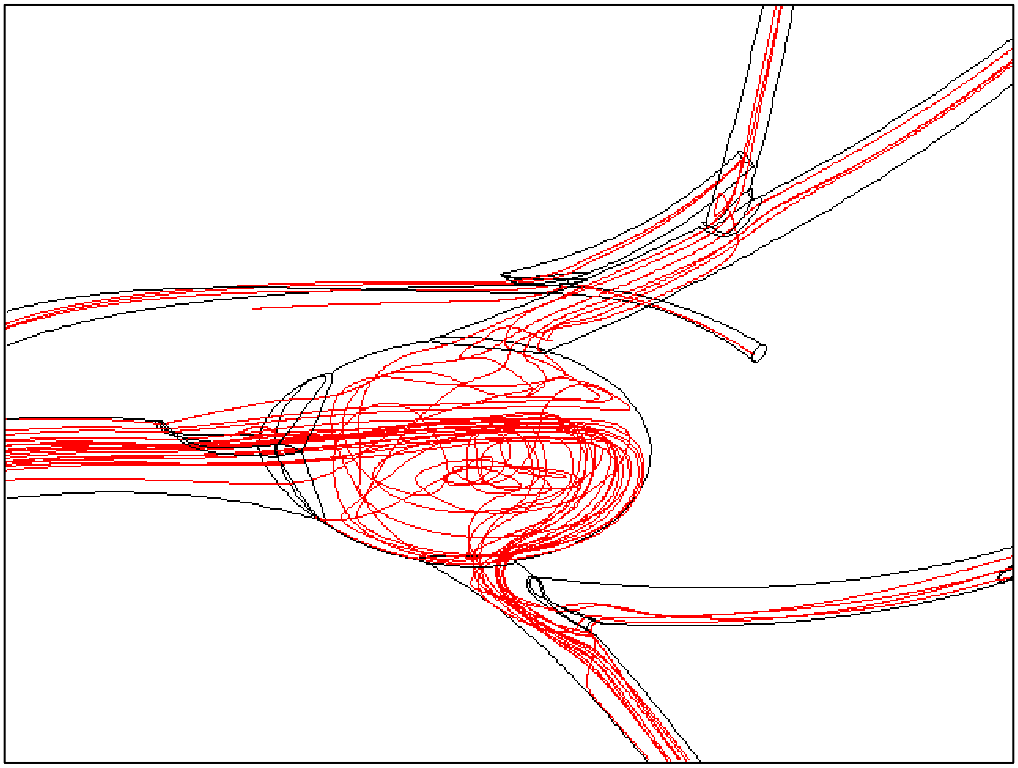

Fig. 32. X-RAA/ streamlines partial sequence / t=0.7s.

Next parameter is the vorticity. By plotting the maximum vorticity [1/s] throughout the blood cycle, there is a noticeable similarity between the vorticity and the velocity curves (see Fig. 34). The curves are almost identical in behavior which suggests there is a relation between the maximum velocity and vorticity.

Vorticity is the tendency for the flow to rotate [26]. With the higher vorticity magnitude, the flow has higher tendency to rotate. With the increase in blood rate, the blood flow would have higher tendency to rotate at certain points inside RAA. Looking at vorticity detail in Fig. 33, there is higher vorticity ring formed inside an RAA. The ring size increases and become more prominent as it progresses further in an RAA. The vorticity increases substantially near the walls of the aneurysm. From the previous, the increase of vorticity magnitude inside the aneurysm suggests that with the fluid higher tendency to rotate, the chances of pressure loss increase since the vorticity is a momentum transfer mechanism for energy loss. For Complete sequence for the vorticity is shown in appendix A6.1.

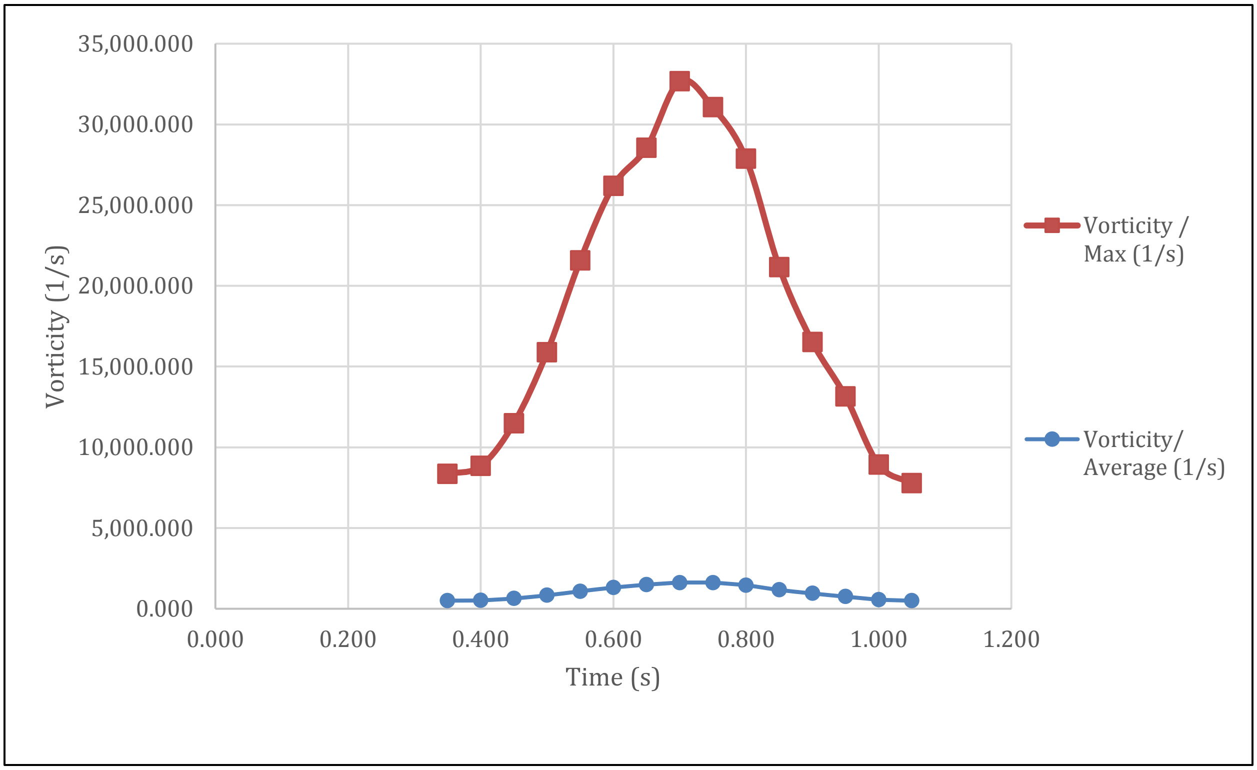

Fig. 34. X-RAA/ maximum vorticity magnitude throughout the blood cycle.

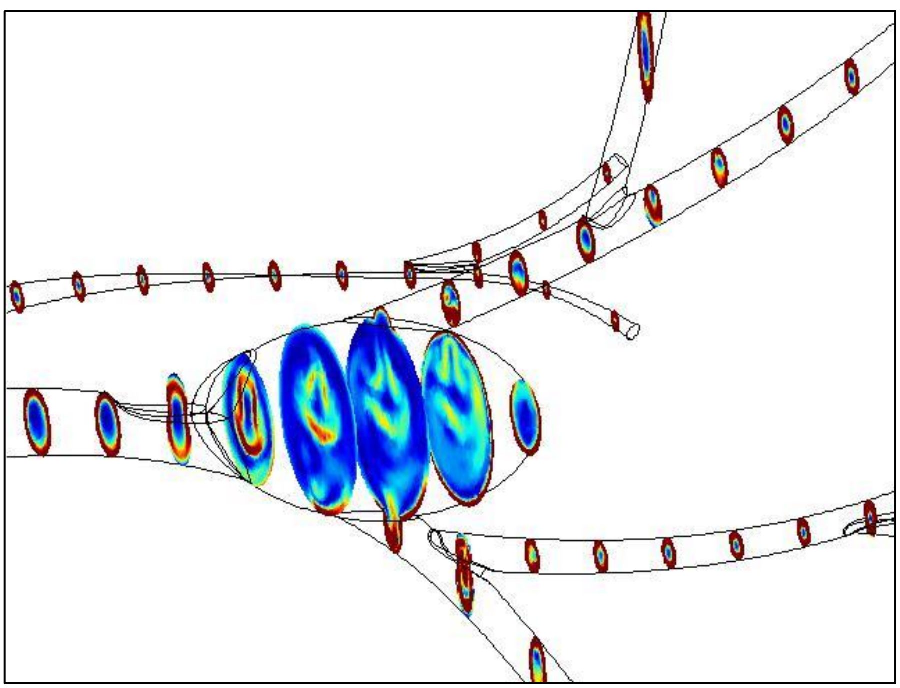

Fig. 33. Vorticity magnitude partial sequence / t=0.7s.

The final parameter to consider is the strain rate. From maximum strain rate plot throughout the time cycle (see Fig. 35), the strain rate behaves very similarly to the velocity and the vorticity.

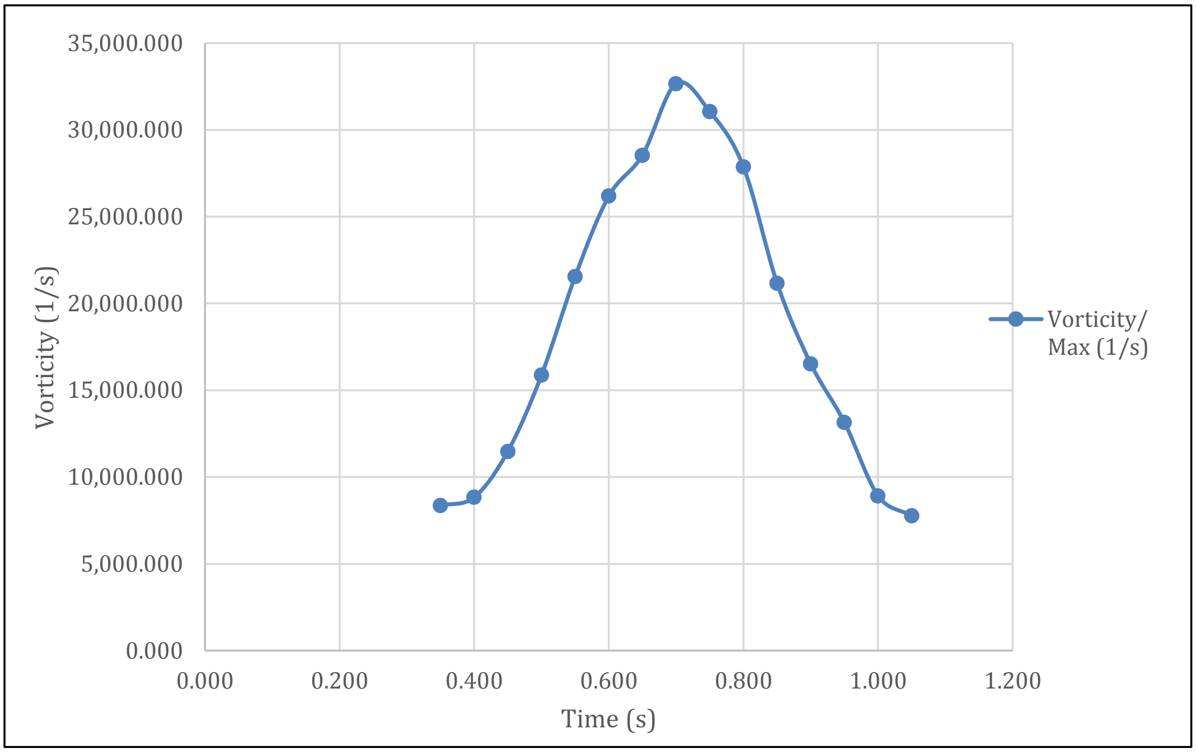

Fig. 35. X-RAA / maximum strain rate magnitude throughout the blood cycle.

The magnitude of the maximum strain rate is almost identical to the magnitude of the vorticity. At first look, there was some confusion how is that possible but further analysis of the vorticity magnitude and strain rate magnitude may be need to explain this phenomenon. By breaking down the vorticity and the strain rates into their components;

For a 3D flow, the vorticity is a curl of the velocity [26,34]

$\boldsymbol{\omega} = curl(\boldsymbol{V}) = \nabla\, X\, \boldsymbol{V}$, where $\boldsymbol{\omega}$ $is\ the\ vorticity\ and\ \boldsymbol{V}\ is\ the\ velocity\ magnitude$

$\boldsymbol{V} = u + v + w$

$$\boldsymbol{\omega} = \left(\frac{\partial w}{\partial y} - \frac{\partial v}{\partial z}\right) i + \left(\frac{\partial u}{\partial z} - \frac{\partial w}{\partial x}\right) j + \left(\frac{\partial v}{\partial x} - \frac{\partial u}{\partial y}\right) k \qquad \ldots (1)$$

For the strain rate,

$$\boldsymbol{\epsilon}_{xy} = \frac{1}{2}\left(\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y}\right) \, and \, \boldsymbol{\epsilon}_{yx} = \frac{1}{2}\left(\frac{\partial u}{\partial y} + \frac{\partial v}{\partial x}\right)$$, where $\boldsymbol{\epsilon}$ *is the strain rate*

Then, $\epsilon_1 = \epsilon_{xy} + \epsilon_{yx} = \frac{\partial v}{\partial x} + \frac{\partial u}{\partial y}$

Similarly, $\epsilon_2 = \frac{\partial v}{\partial z} + \frac{\partial w}{\partial y}$ and $\epsilon_3 = \frac{\partial u}{\partial z} + \frac{\partial w}{\partial x}$

By adding the strain components,

$$\epsilon = \left(\frac{\partial v}{\partial z} + \frac{\partial w}{\partial y}\right) i + \left(\frac{\partial u}{\partial z} + \frac{\partial w}{\partial x}\right) j + \left(\frac{\partial v}{\partial x} + \frac{\partial u}{\partial y}\right) k \qquad \text{... (2)}$$

The terms for the vorticity and strain rate look similar but not identical, further analysis was needed to explain which components can be eliminated. This analysis is best done visually.

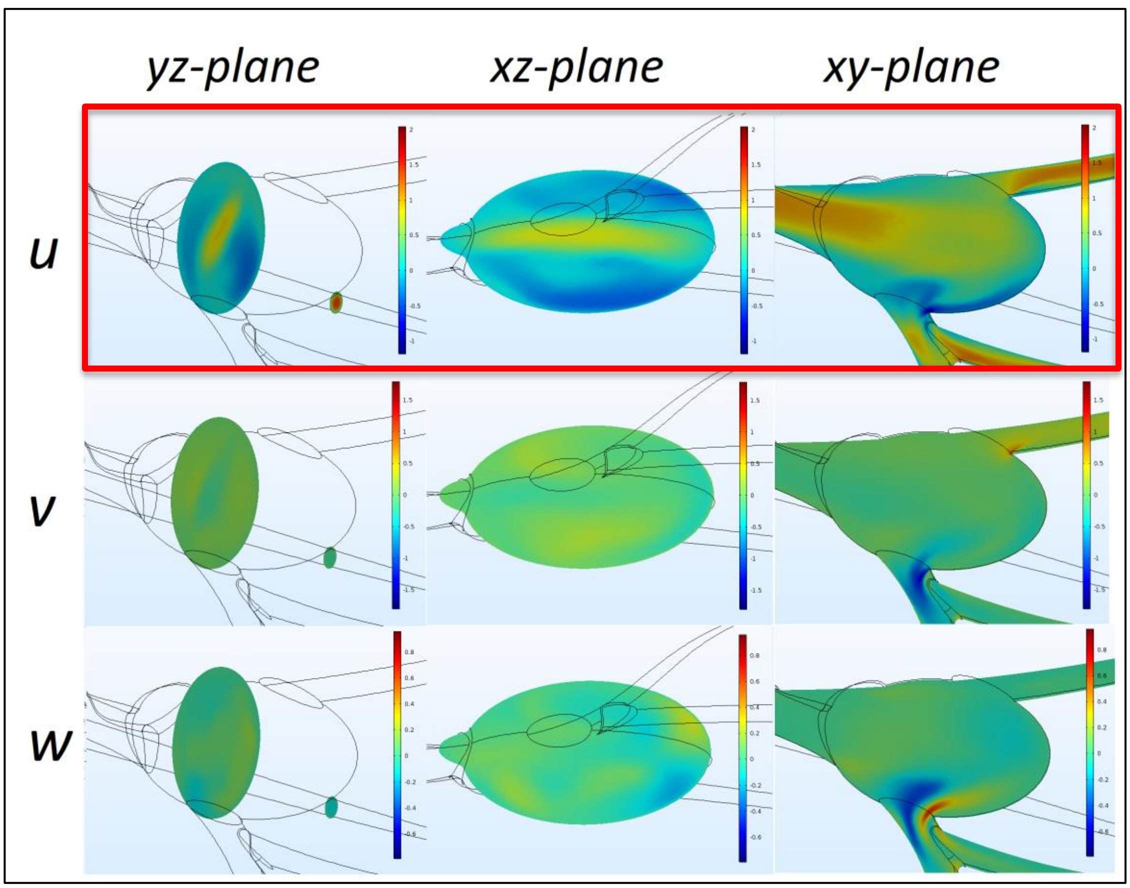

Fig. 36. X-RAA / u, v, & w velocity components in xy, yz, & xz-planes.

By using the plot feature in CMP, nine plots were developed showing each velocity component (u, v, & w) in each plane (xy, yz, and xz-plane). Since the vorticity and strain rate components are the change or the velocity component in each direction, as in Fig. 35, there is a significant change in the magnitude of the x-velocity component (u) in all the three planes (non-uniform color for x-velocity component ***u*** in all the planes). The change in the v, and w velocity components are negligible (uniform color). This can be summarized in table. 2 and 3 below.

Table 2. Velocity component uniformity.

	u	v	w
x	Non-uniform	Uniform	Uniform
y	Non-uniform	Uniform	Uniform
z	Non-uniform	Uniform	Uniform

Table 3. The effect of the vorticity and strain rate components.

	∂u	∂v	∂w
∂x	Significant	Negligible	Negligible
∂y	Significant	Negligible	Negligible
∂z	Significant	Negligible	Negligible

Looking back at the vorticity and strain rate equations (1) and (2), the change in v and w components can be eliminated. The two equations can be reduced to the following:

$$\boldsymbol{\omega} = \left(\frac{\partial u}{\partial z}\right)\boldsymbol{j} + \left(-\frac{\partial u}{\partial y}\right)\boldsymbol{k} \qquad \textbf{... (1')}$$

$$\boldsymbol{\epsilon} = \left(\frac{\partial u}{\partial z}\right)\boldsymbol{j} + \left(\frac{\partial u}{\partial y}\right)\boldsymbol{k} \qquad \textbf{... (2')}$$

Since the negative sign in the vorticity equation is, only, an indication of the direction and not the magnitude, the two equation (1') and (2') are identical. This explains why the vorticity magnitude and strain rate magnitude are identical.

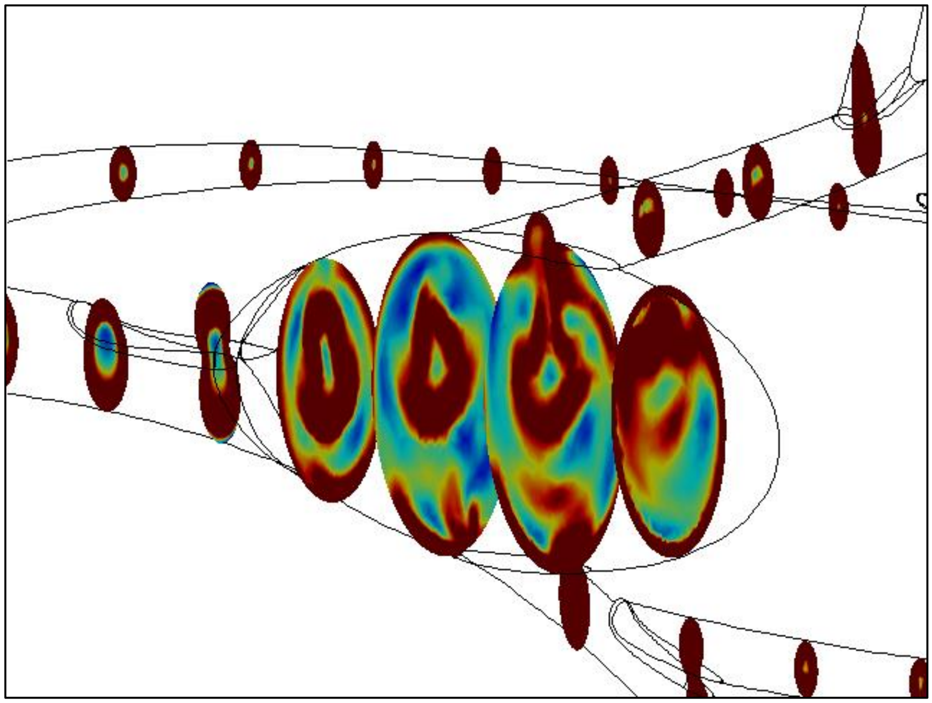

Fig. 37. X-RAA/ strain rate magnitude partial sequence/ t=0.7s.

Looking at Fig. 37, the vorticity, the strain rate has very similar pattern to the vorticity. It seems that the flow would have higher strain rate and consequently higher tendency to deform near the walls of an RAA There is a similar ring formed in the center of an RAA as well. Looking at the difference between the strain rate magnitude on the aneurysm walls between the lowest and highest blood flow, there is a noticeable difference in magnitude. The Alternating strain rates on the aneurysm walls cause it to weaken. Complete strain rate sequence is shown in Appendix A6.5.

Chapter Five: Conclusion

A Renal artery aneurysm (RAA) is an expansion of blood vessel walls that forms on the main renal artery or the sub-branches. With the blood continually flowing in the vessels, the sheer force keeps weakening the walls causing an RAA to grow. The pressure drop along the main artery plays a role in triggering the RAAS which causes the secondary hypertension.

The location of an RAA plays a significant role in the pressure drop. By studying the effect of the most frequent location on the pressure drop, the conclusion is an RAA closer to the inlet and located on junctions has the biggest effect. Another factor affect the pressure drop is the size of an RAA. By the studying the different growth rate, it was concluded that pressure drop increases as the size of an RAA increases to a certain point where the size is no longer significant. The last factor is the effect of the blood cycle. The higher the flow rate causes the pressure drop to increase. From the previous 3 factors, it was concluded that the extreme case of the renal artery aneurysm (X-RAA), in this study, is located on the first junction, full size, with the highest blood flow.

X-RAA could develop enough static pressure drop (approximately 19mmHg at peak and 11mmHg at average), in this case, to trigger RAAS and cause secondary hypertension. From the study of X-RAA, there are number of parameters that can cause the pressure drop. The most significant is blood stream entering the aneurysm at high flow rate. The blood stream tends to have sharp bends and change of direction in the velocity streamlines at the outer wall causing loss of energy and consequently pressure loss. It, also, creates high vorticity and strain rate areas or spikes in the aneurysm.

The detection of a RAAs or aneurysms in general, is incidental. Most of the cases have been discovered during a CT-scam or X-ray for another issue. Hence, the ability to predict the existence of a RAA is very important and has not been successful so far. The characteristics of an RAA make it hard to detect which increase the cost of any medical procedure to cure it. It is very important to diagnose and treat aneurysm in earlier stages. Although smaller aneurysm may not be fatal, it will present any chances of becoming an extreme case where it would cause secondary hypertension or leads to rupture. Further studies to be able to detect RAA are recommended.

Future research should include studying different configuration of RAAs such as different types, different sizes, as well as the effect of heart rate on RAA analysis. Another area of interest could be the solid-fluid interaction where the researcher could study the effect of the vessel walls such as the material, diameter, and thickness on the RAAs. One could find a relation between different types of aneurysm and a secondary hypertension. Special case of higher blood flow in the body such as the case of pregnancy, where an RAA becomes more fatal, needs to be further explored. The effect of multiple RAA on the blood stream could be a topic worth considering.

Biomechanics of the aneurysm and tissues may be an area of interest to figure out why the tissues continue to expand and don't repair themselves as normal healthy tissue cells do.

Finally, the author hopes this research could be used as a framework for future research. Renal artery aneurysm is not a well understood or discussed subject, but it has fatal consequences when it is untreated. Science is the driving force in the world to find solutions.

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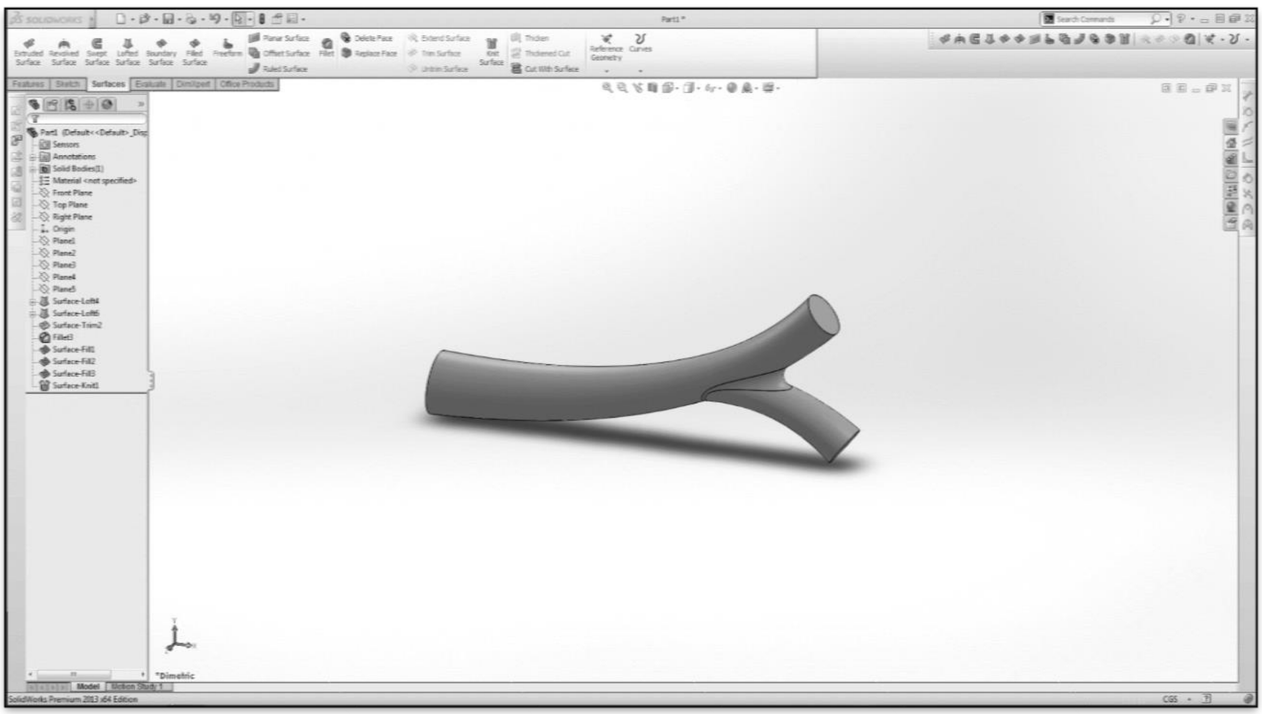
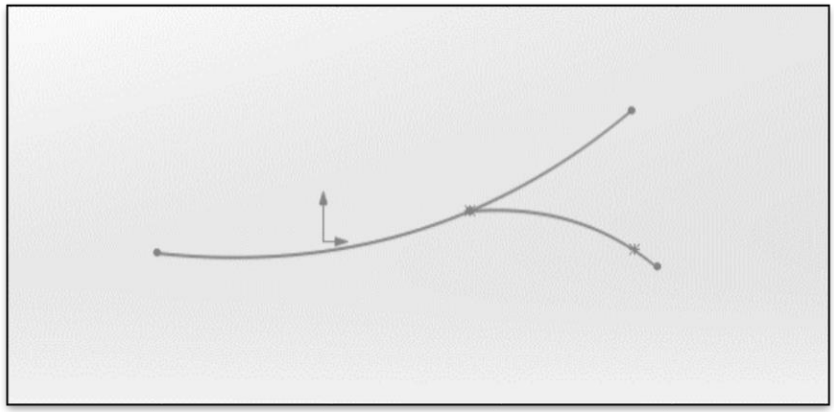
Appendix 1: Creating the Model in Solidworks

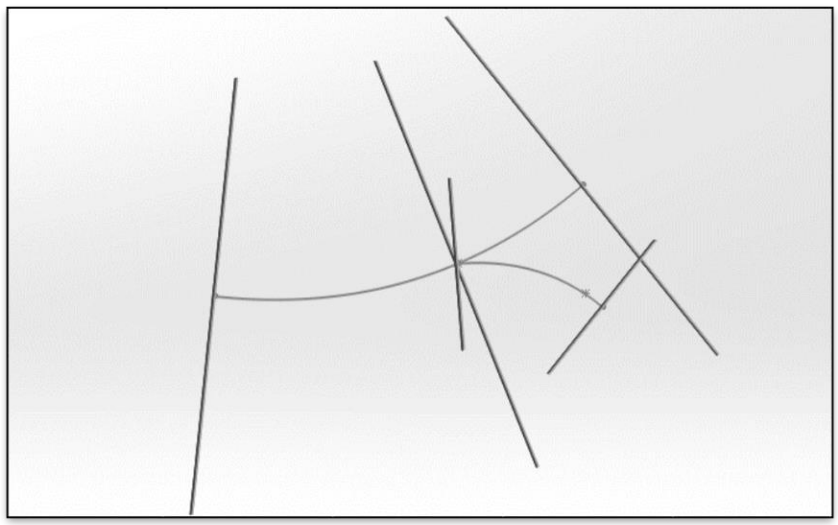
The purpose of this tutorial is to guide the user for creating a 3D model of blood vessels is Solidworks©. Created by Dassault Systèmes Solidworks Corp. in 1993 and offers complete 3D software tools that let users create, simulate, publish, and manage data. “The Solidworks focus on ease-of-use and allows more engineers, designers and other technology professionals to take advantage of 3D modeling in bringing their designs to life.” [35].



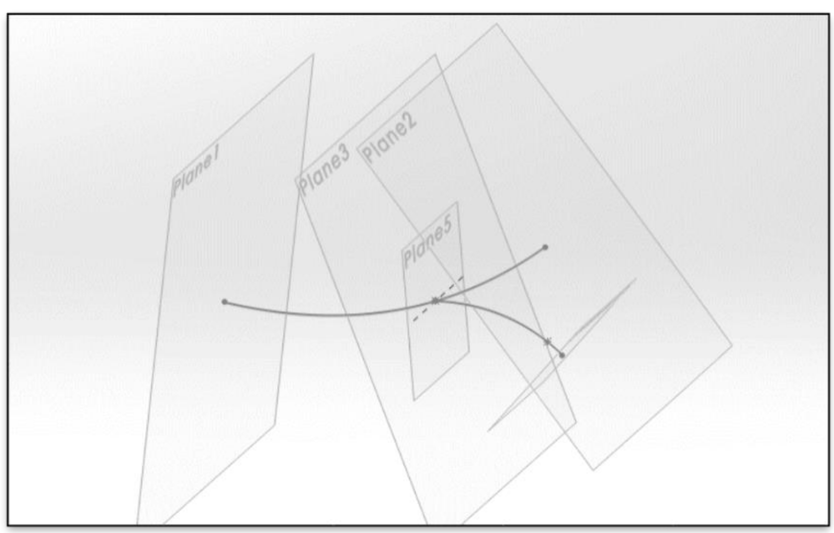
1. Open Solidworks, Select new ➔ part.



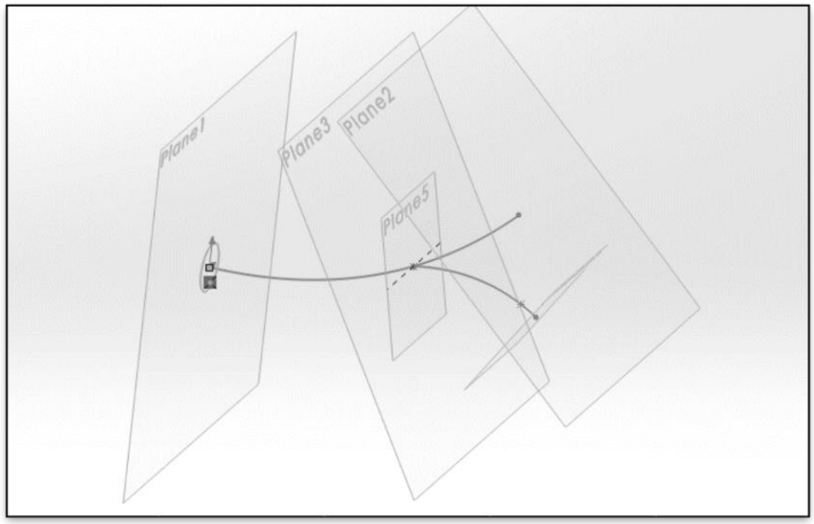
2. Select "3D sketch" from drawing ribbon then use the spline to draw the outline of the model.



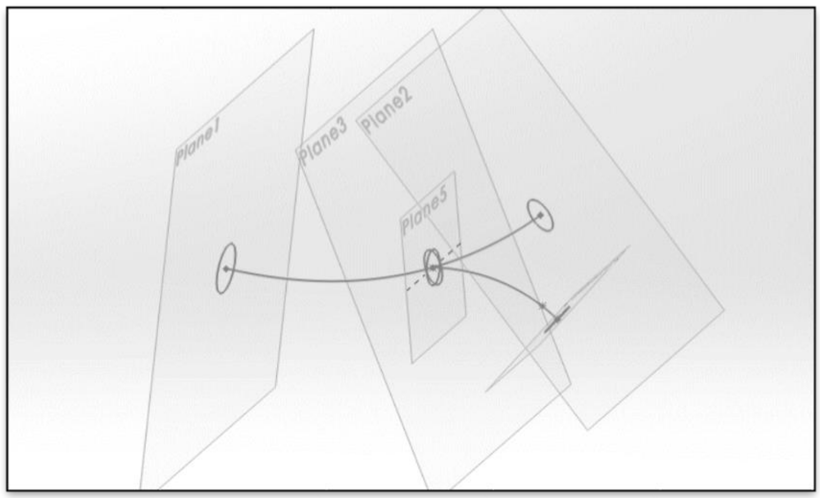
3. From the surfaces ribbon, select the "plane geometry" and create a plane on each of the main point.



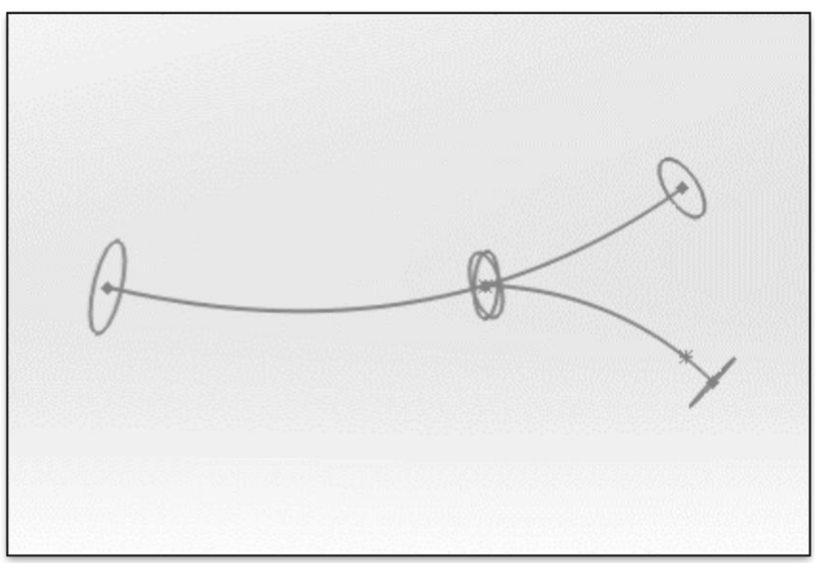
4. Select the desired plane and create a circle representing the diameter of the vein.



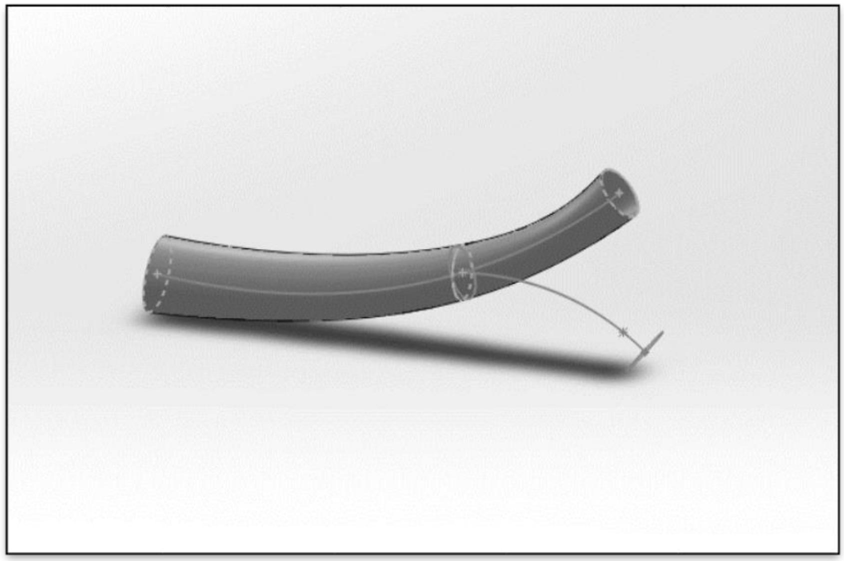
5. Repeat step #4 till all the circles are created on all the planes.



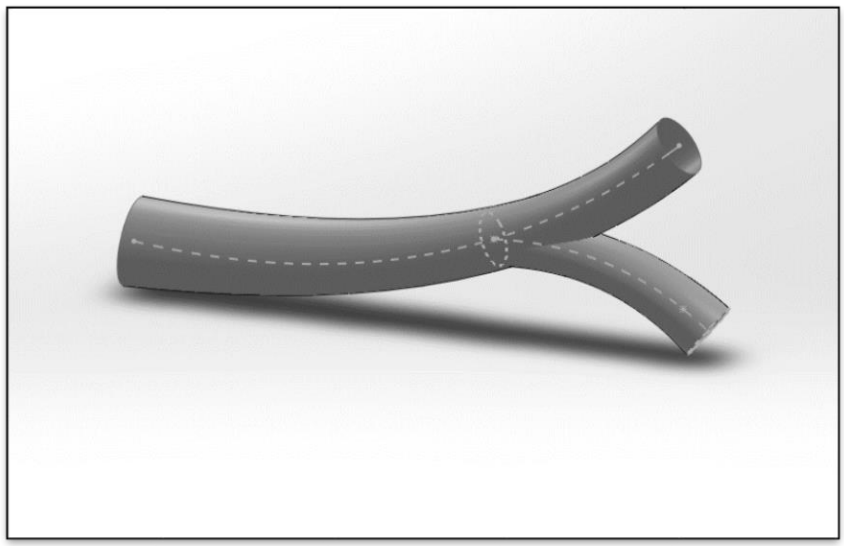
Hint: Select all the planes in the side bar and use option "hide" to make it easier view.



6. From the surfaces ribbon, use the "lofted surface" command. Select a point on the first circle, then the second circle, and finally the third circle to create the vein.

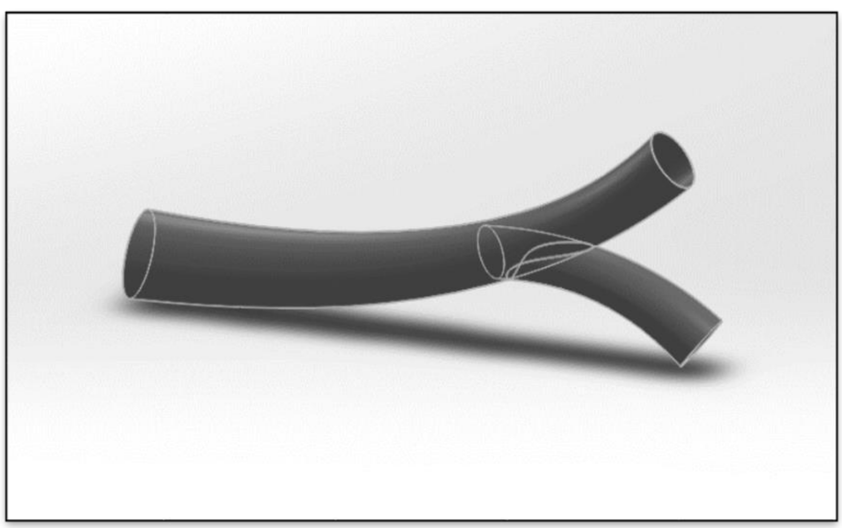


7. Repeat the process to create the other vein.

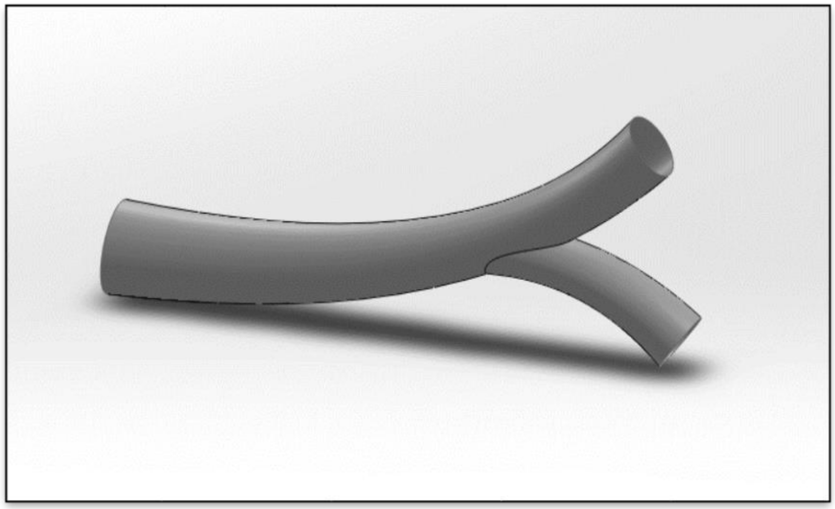


Note: if you have less than three circles, use the guided curve option.

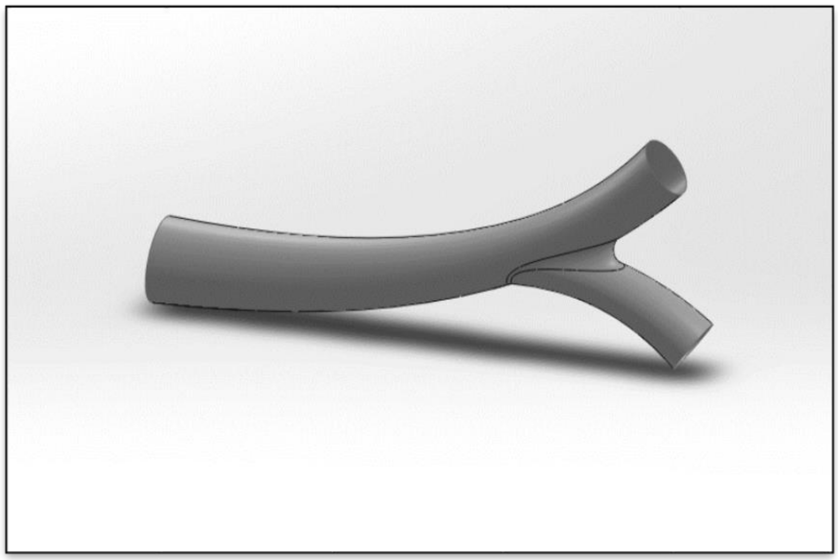
8. Trim the two using the "trim surface" command in the surfaces ribbon.



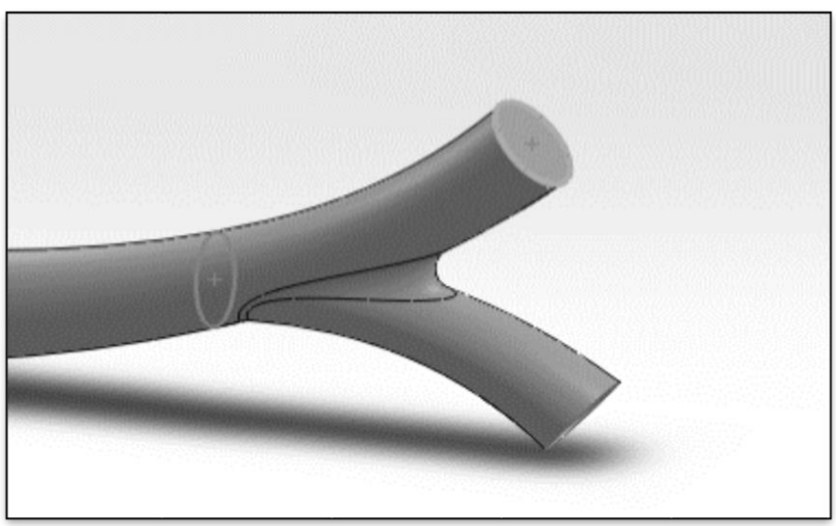
9. To trim the surface, select the two surfaces, then select the option "keep" and select the surfaces you want to keep.



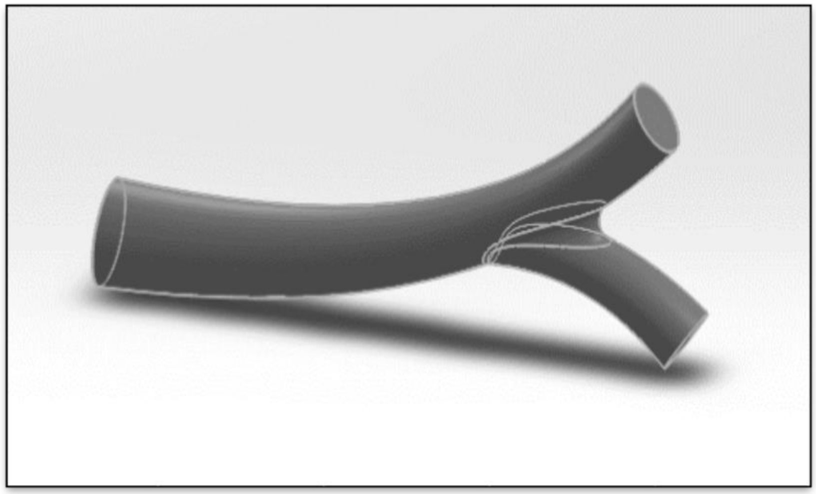
10. Create the joint between the veins using the "fillet" option from the surfaces ribbon, make sure to use appropriate radius.



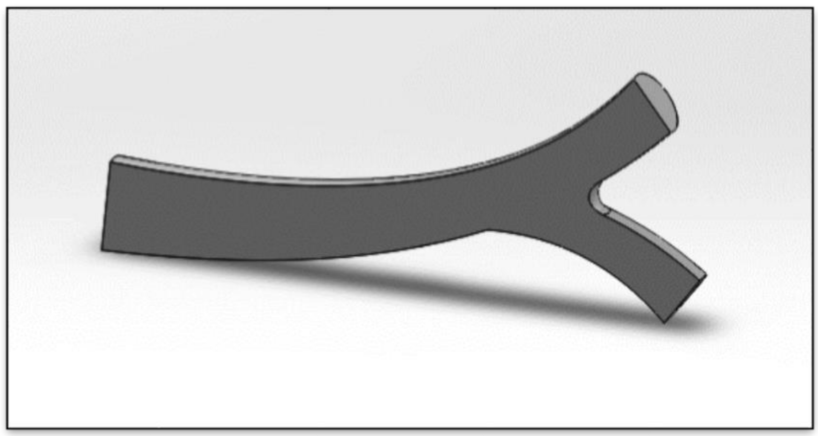
11. Select every end of the vein and use the "filled surface" option from the surfaces ribbon to cap the ends.



12. Final step is creating the solid. Use the "Knit surface" option in the surfaces ribbon, select the entire geometry, the check the "merge geometry" and "try to for a solid" checkboxes.



13. Select the entire geometry and use "heal edges" command to correct any geometry disconnections.



Hint: use the section view to verify the solid geometry was correctly created.

Appendix 2: Detailed Geometry

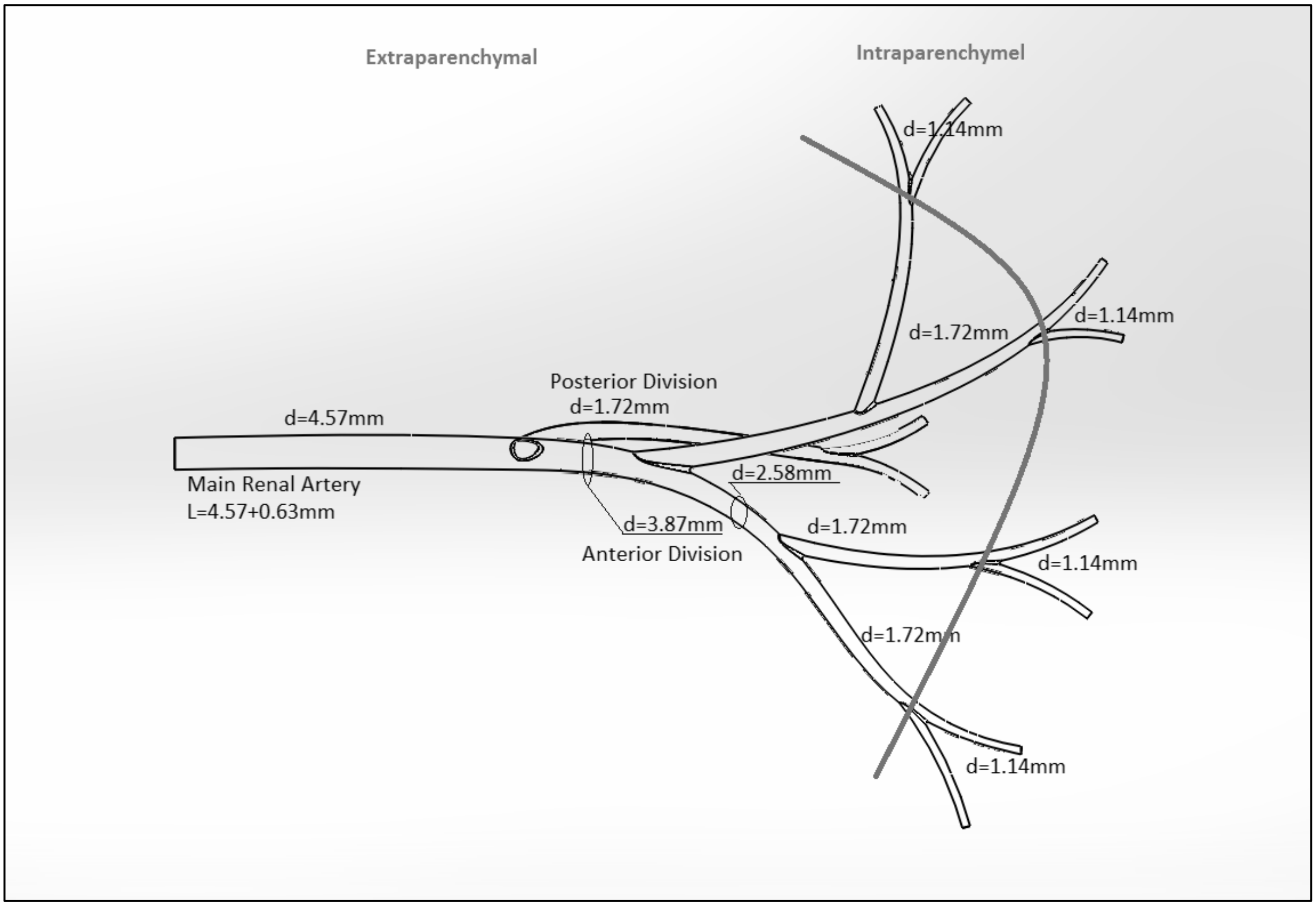


Fig. 38. Renal artery network geometry detailed dimensions.

Appendix 3: Mesh Resolution

An important aspect of finite elements modeling is determining if the chosen resolution is sufficient. To verify the correct resolution, the model was built using all the available resolution from the worst to the best.

1) Extremely Coarse: the mesh couldn't be created due to the error "Failed to create boundary layer mesh".
2) Extra coarse: The mesh was built with 43,147 domain elements[18], 8,354 boundary elements[19], and 1,308 edge elements[20]. There were some warnings in the modeling which lead us to conclude his resolution is not sufficient. The warnings are:
    a) Face is (or has a narrow region that is) much smaller than the specified minimum element size.
    b) Edge is much shorter than the specified minimum element size.
    c) Number of low quality elements: 1
3) Coarser: The mesh was built with 52,468 domain elements, 9,422 boundary elements, and 1,395 edge elements. There were some warnings in the modeling which lead us to conclude his resolution is not sufficient. The warnings are:
    a) Face is (or has a narrow region that is) much smaller than the specified minimum element size.
    b) Edge is much shorter than the specified minimum element size.

---

18 Domain Element: The total number of mesh elements in the geometry
19 Boundary Element: the total number of surface elements in the geometry
20 Edge Element: the total number of surface edges (change of plane) in the geometry

4) Coarse: The mesh was built with 92,420 domain elements, 14,894 boundary elements, and 1,763 edge elements. There were some warnings in the modeling which lead us to conclude his resolution is not sufficient. The warnings are:
    a) Face is (or has a narrow region that is) much smaller than the specified minimum element size.
    b) Edge is much shorter than the specified minimum element size.
5) Normal: The mesh was built with 191,145 domain elements, 27,402 boundary elements, and 2,485 edge elements. There were no warnings or errors. Computation Run Time for stationary case 29 minutes on the Buddy cluster with Hi-memory nodes (63 minutes for transient with 28-time interval). Results are shown in Table. 3.
6) Fine: The mesh was built with 625,436 domain elements, 62760 boundary elements, and 4,009 edge elements. There were no warnings or errors. No error. Computation Run Time for stationary case 51 minutes on the Buddy cluster with Hi-memory nodes (168 minutes for transient with 28-time interval). Results are shown in Table. 3.
7) Finer: The mesh was built with 1,669,359 domain elements, 128,382 boundary elements, and 5,996 edge elements. There were no warnings or errors. No error. Computation Run Time for stationary case 197 minutes on the Buddy cluster with Hi-memory nodes (16 hours and 37 minutes for transient with 28-time interval). Results are shown in Table. 3.
8) Extra Fine: The mesh was built with 7,026,574 domain elements, 348,754 boundary elements, and 9,971 edge elements. There were no warnings or errors. No error.

Conclusion: From the previous results, the "fine resolution" is sufficient for the purposes of this study as the percentage improvement from the fine mesh to finer mesh is on average 1%.

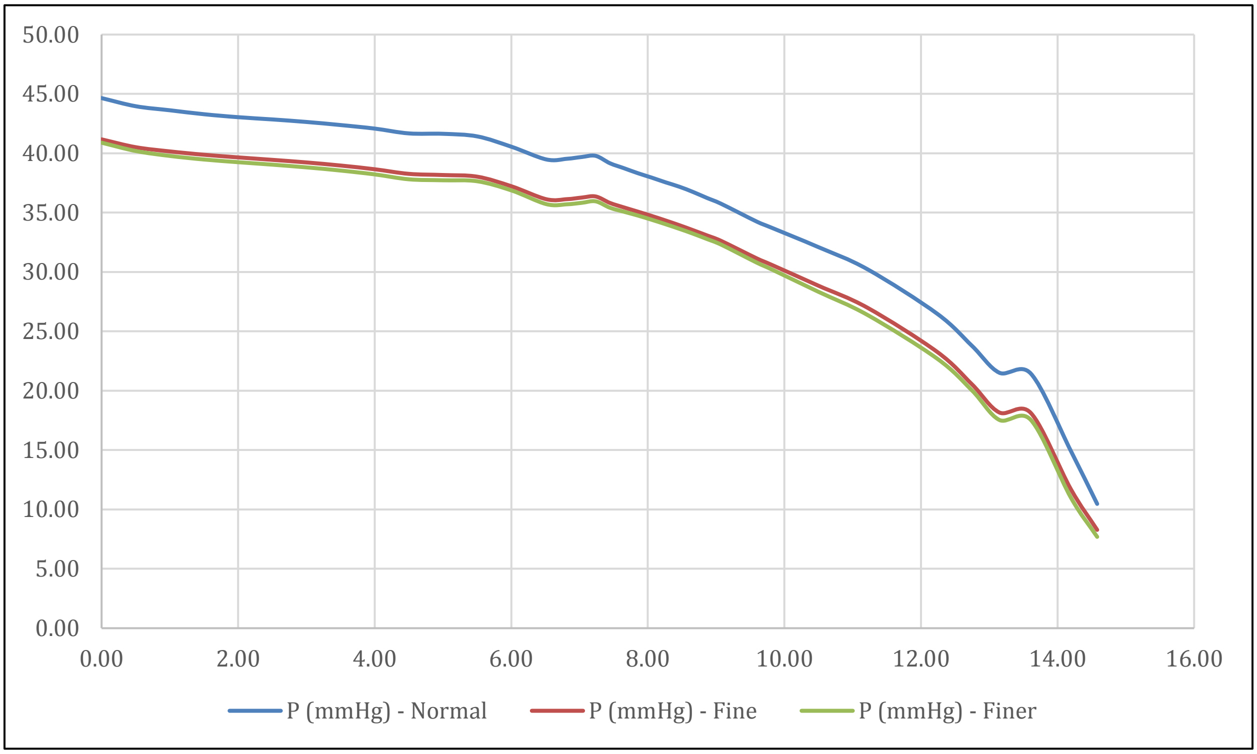


Fig. 39. Mesh resolution comparison/ TRAN - highest flow - branch #2

Mesh Resolution Results and Improvement
TRAN - Norma, Fine, and Finer Mesh

	Length (cm)	P (mmHg) - Normal	P (mmHg) - Fine	% Improvement	P (mmHg) - Finer	% Improvement
Line #1	0.00	44.65	41.17	7.79%	40.89	0.68%
	0.50	43.96	40.51	7.73%	40.19	0.77%
	1.00	43.62	40.16	7.76%	39.78	0.92%
	1.50	43.29	39.88	7.65%	39.48	0.97%
	2.00	43.04	39.66	7.58%	39.25	0.98%
	2.50	42.85	39.45	7.62%	39.04	0.98%
	3.00	42.64	39.23	7.64%	38.82	1.01%
	3.50	42.38	38.97	7.64%	38.55	1.02%
	4.00	42.08	38.66	7.67%	38.22	1.05%
	4.50	41.68	38.27	7.63%	37.81	1.11%
	5.00	41.64	38.17	7.78%	37.73	1.07%
	5.50	41.42	38.03	7.60%	37.65	0.93%
	6.00	40.55	37.22	7.46%	36.87	0.85%
	6.51	39.48	36.13	7.51%	35.72	1.00%
	6.82	39.54	36.14	7.63%	35.71	1.04%
	7.03	39.69	36.27	7.66%	35.83	1.07%
	7.23	39.79	36.37	7.66%	35.96	1.00%
	7.45	39.16	35.82	7.49%	35.41	0.99%
	7.65	38.75	35.44	7.40%	35.08	0.88%
	7.85	38.33	35.09	7.25%	34.76	0.79%
	8.05	37.96	34.73	7.23%	34.41	0.78%
	8.26	37.56	34.34	7.20%	34.03	0.76%
	8.46	37.19	33.95	7.26%	33.64	0.74%
	8.66	36.74	33.52	7.21%	33.23	0.72%
	8.87	36.24	33.08	7.07%	32.78	0.74%
	9.07	35.75	32.63	7.00%	32.31	0.76%
	9.60	34.24	31.14	6.94%	30.78	0.87%
	9.80	33.76	30.64	6.99%	30.25	0.93%
	10.49	32.11	28.87	7.27%	28.36	1.24%
	11.22	30.23	26.98	7.26%	26.38	1.47%
	12.24	26.48	23.27	7.20%	22.70	1.38%
	12.75	23.78	20.53	7.26%	20.02	1.24%
	13.15	21.52	18.17	7.50%	17.54	1.53%
	13.61	21.44	18.13	7.43%	17.54	1.43%
	14.19	14.94	11.71	7.22%	11.01	1.71%
	14.58	10.47	8.28	4.91%	7.70	1.42%
	Length (cm)	P (mmHg) - Normal	P (mmHg) - Fine	% Improvement	P (mmHg) - Finer	% Improvement
Line #2	0.00	44.65	41.17	7.79%	40.89	0.68%
	0.50	43.96	40.51	7.73%	40.19	0.77%
	1.00	43.62	40.16	7.76%	39.78	0.92%
	1.50	43.29	39.88	7.65%	39.48	0.97%
	2.00	43.04	39.66	7.58%	39.25	0.98%
	2.50	42.85	39.45	7.62%	39.04	0.98%
	3.00	42.64	39.23	7.64%	38.82	1.01%
	3.50	42.38	38.97	7.64%	38.55	1.02%
	4.00	42.08	38.66	7.67%	38.22	1.05%
	4.50	41.68	38.27	7.63%	37.81	1.11%
	5.00	41.64	38.17	7.78%	37.73	1.07%
	5.50	41.42	38.03	7.60%	37.65	0.93%
	6.00	40.55	37.22	7.46%	36.87	0.85%
	6.51	39.48	36.13	7.51%	35.72	1.00%
	6.82	39.54	36.14	7.63%	35.71	1.04%
	7.03	39.69	36.27	7.66%	35.83	1.07%
	7.23	39.79	36.37	7.66%	35.96	1.00%
	7.45	39.16	35.82	7.49%	35.41	0.99%
	7.65	38.75	35.44	7.40%	35.08	0.88%
	7.85	38.33	35.09	7.25%	34.76	0.79%
	8.05	37.96	34.73	7.23%	34.41	0.78%
	8.26	37.56	34.34	7.20%	34.03	0.76%
	8.46	37.19	33.95	7.26%	33.64	0.74%
	8.66	36.74	33.52	7.21%	33.23	0.72%
	8.87	36.24	33.08	7.07%	32.78	0.74%
	9.07	35.75	32.63	7.00%	32.31	0.76%
	9.60	34.24	31.14	6.94%	30.78	0.87%
	9.80	33.76	30.64	6.99%	30.25	0.93%
	10.12	34.95	31.84	6.97%	31.54	0.73%
	10.65	34.41	31.50	6.51%	31.35	0.37%
	11.19	32.70	29.95	6.15%	29.86	0.23%
	11.76	29.98	27.28	6.04%	27.22	0.14%
	12.35	25.77	22.98	6.24%	22.92	0.16%
	12.96	24.17	21.51	5.97%	21.30	0.50%
	13.66	12.09	10.67	3.18%	10.62	0.12%
	14.16	0.68	0.35	0.74%	0.20	0.37%
	Length (cm)	P (mmHg) - Normal	P (mmHg) - Fine	% Improvement	P (mmHg) - Finer	% Improvement
	0.00	44.65	41.17	7.79%	40.89	0.68%
	0.50	43.96	40.51	7.73%	40.19	0.77%
	1.00	43.62	40.16	7.76%	39.78	0.92%
	1.50	43.29	39.88	7.65%	39.48	0.97%
	2.00	43.04	39.66	7.58%	39.25	0.98%
	2.50	42.85	39.45	7.62%	39.04	0.98%
	3.00	42.64	39.23	7.64%	38.82	1.01%
	3.50	42.38	38.97	7.64%	38.55	1.02%
	4.00	42.08	38.66	7.67%	38.22	1.05%

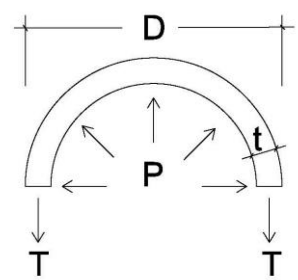
Line #3	4.50	41.68	38.27	7.63%	37.81	1.11%
	5.00	41.64	38.17	7.78%	37.73	1.07%
	5.50	41.42	38.03	7.60%	37.65	0.93%
	6.00	40.55	37.22	7.46%	36.87	0.85%
	6.51	39.48	36.13	7.51%	35.72	1.00%
	6.82	39.54	36.14	7.63%	35.71	1.04%
	7.02	39.86	36.43	7.70%	36.00	1.04%
	7.24	40.12	36.67	7.73%	36.25	1.02%
	7.47	39.66	36.24	7.66%	35.81	1.04%
	7.70	39.07	35.74	7.47%	35.31	1.05%
	7.94	38.40	35.09	7.42%	34.69	0.96%
	8.17	37.62	34.35	7.32%	33.94	1.01%
	8.40	36.79	33.55	7.26%	33.12	1.03%
	8.68	35.64	32.37	7.33%	31.89	1.16%
	8.96	35.15	31.84	7.40%	31.26	1.40%
	9.25	36.03	32.58	7.72%	31.94	1.55%
	9.57	35.90	32.43	7.77%	31.80	1.54%
	10.39	34.19	30.91	7.33%	30.33	1.41%
	11.25	30.84	27.71	7.02%	27.15	1.35%
	11.92	25.61	22.70	6.51%	21.96	1.79%
	12.50	23.52	20.77	6.15%	20.07	1.69%
	13.04	11.07	9.66	3.16%	8.91	1.82%
	13.56	0.31	0.46	-0.34%	0.24	0.54%
	13.66	0.33	-0.02	0.78%	-0.06	0.09%
	Length (cm)	**P (mmHg) - Normal**	**P (mmHg) - Fine**	**% Improvement**	**P (mmHg) - Finer**	**% Improvement**
Line #4	0.00	44.65	41.17	7.79%	40.89	0.68%
	0.50	43.96	40.51	7.73%	40.19	0.77%
	1.00	43.62	40.16	7.76%	39.78	0.92%
	1.50	43.29	39.88	7.65%	39.48	0.97%
	2.00	43.04	39.66	7.58%	39.25	0.98%
	2.50	42.85	39.45	7.62%	39.04	0.98%
	3.00	42.64	39.23	7.64%	38.82	1.01%
	3.50	42.38	38.97	7.64%	38.55	1.02%
	4.00	42.08	38.66	7.67%	38.22	1.05%
	4.50	41.68	38.27	7.63%	37.81	1.11%
	5.00	41.64	38.17	7.78%	37.73	1.07%
	5.50	41.42	38.03	7.60%	37.65	0.93%
	6.00	40.55	37.22	7.46%	36.87	0.85%
	6.51	39.48	36.13	7.51%	35.72	1.00%
	6.82	39.54	36.14	7.63%	35.71	1.04%
	7.02	39.86	36.43	7.70%	36.00	1.04%
	7.24	40.12	36.67	7.73%	36.25	1.02%
	7.47	39.66	36.24	7.66%	35.81	1.04%
	7.70	39.07	35.74	7.47%	35.31	1.05%
	7.94	38.40	35.09	7.42%	34.69	0.96%
	8.17	37.62	34.35	7.32%	33.94	1.01%
	8.40	36.79	33.55	7.26%	33.12	1.03%
	8.68	35.64	32.37	7.33%	31.89	1.16%
	8.96	35.15	31.84	7.40%	31.26	1.40%
	9.19	34.52	31.14	7.55%	30.44	1.71%
	9.43	34.69	31.33	7.54%	30.63	1.70%
	9.93	32.68	29.64	6.80%	29.15	1.21%
	10.43	30.55	27.54	6.75%	27.02	1.25%
	10.94	27.89	24.98	6.52%	24.54	1.05%
	11.44	24.57	21.75	6.30%	21.39	0.88%
	11.94	22.10	19.28	6.31%	18.83	1.10%
	12.45	21.43	18.80	5.87%	18.46	0.82%
	12.96	16.40	14.27	4.77%	14.04	0.55%
	13.52	6.17	4.95	2.72%	4.82	0.32%
	13.63	3.37	2.41	2.16%	2.33	0.20%
	Length (cm)	**P (mmHg) - Normal**	**P (mmHg) - Fine**	**% Improvement**	**P (mmHg) - Finer**	**% Improvement**
Line #4	0.00	44.65	41.17	7.79%	40.89	0.68%
	0.50	43.96	40.51	7.73%	40.19	0.77%
	1.00	43.62	40.16	7.76%	39.78	0.92%
	1.50	43.29	39.88	7.65%	39.48	0.97%
	2.00	43.04	39.66	7.58%	39.25	0.98%
	2.50	42.85	39.45	7.62%	39.04	0.98%
	3.00	42.64	39.23	7.64%	38.82	1.01%
	3.50	42.38	38.97	7.64%	38.55	1.02%
	4.00	42.08	38.66	7.67%	38.22	1.05%
	4.50	41.68	38.27	7.63%	37.81	1.11%
	5.00	41.64	38.17	7.78%	37.73	1.07%
	5.56	40.97	37.39	8.03%	36.86	1.27%
	5.85	40.69	37.18	7.88%	36.68	1.21%
	6.36	39.63	36.15	7.80%	35.62	1.29%
	7.12	36.59	33.19	7.61%	32.60	1.43%
	7.96	31.24	27.86	7.59%	27.29	1.38%
	8.67	27.97	24.72	7.28%	24.24	1.16%
	9.17	26.28	22.97	7.40%	22.75	0.55%
	9.68	23.95	20.56	7.60%	20.43	0.31%
	10.18	21.41	17.95	7.76%	17.63	0.78%
	10.69	13.47	11.92	3.47%	11.78	0.33%
	11.24	4.46	3.72	1.65%	3.60	0.29%

Appendix 4: The Effect of Change in Artery Diameter

As the pressure changes in the Renal artery, there will be slight diameter change, In this research, decision was made to ignore the diameter change. The purpose of this appendix to justify the decision.

$2T = PD \qquad but\ T = \sigma t, where\ \sigma: the\ shear\ stress$

$then, 2\sigma t = PD$



$\sigma = P\frac{D}{2t}$

$but\ \sigma = \mathcal{E}E, where\ \mathcal{E}: the\ strain, E: Youngs\ Modulus$

$\mathcal{E}E = P\frac{D}{2t}$

$\mathcal{E} = P\frac{D}{2tE}$

$\Delta\mathcal{E} = \Delta P\frac{D}{2tE}$

$\Delta\mathcal{E}: is\ the\ percentage\ change\ in\ diameter\ as\ \Delta\mathcal{E} = \frac{\Delta D}{D}$

$for\ blood\ vessles\ E = 8 - 20x10^5 Pa$

$from\ previous\ analysis, \Delta P = 43.38 - 11.05$

$= 32.33mmHg\ (at\ worst\ case\ scenario)$

$then,$

$\Delta\mathcal{E} = 33.33mmHg\ x\ \frac{133Pa}{1mmHg}\ x\ \frac{4.57x10^{-3}m}{2\ x\ 128x10^{-6}m\ x\ 8x10^{5}Pa} = 0.096 = 9.59\%$

Since the change in diameter is less than 10%, it was safe to ignore the diameter change, only, for the purpose of this research.

Appendix 5: Results and Analysis Plots

A5.1 The Effect of RAA Location

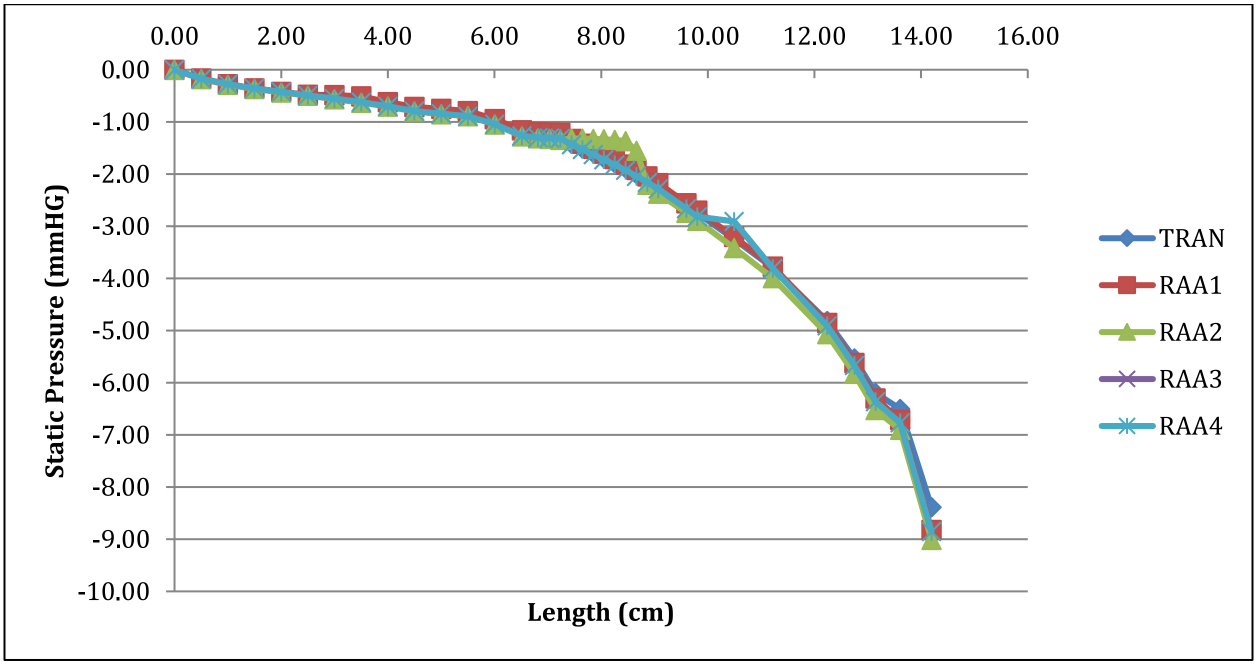


Fig. 40. Branch #1 pressure drop/ RAA location comparison for the lowest blood flow/ adjusted.

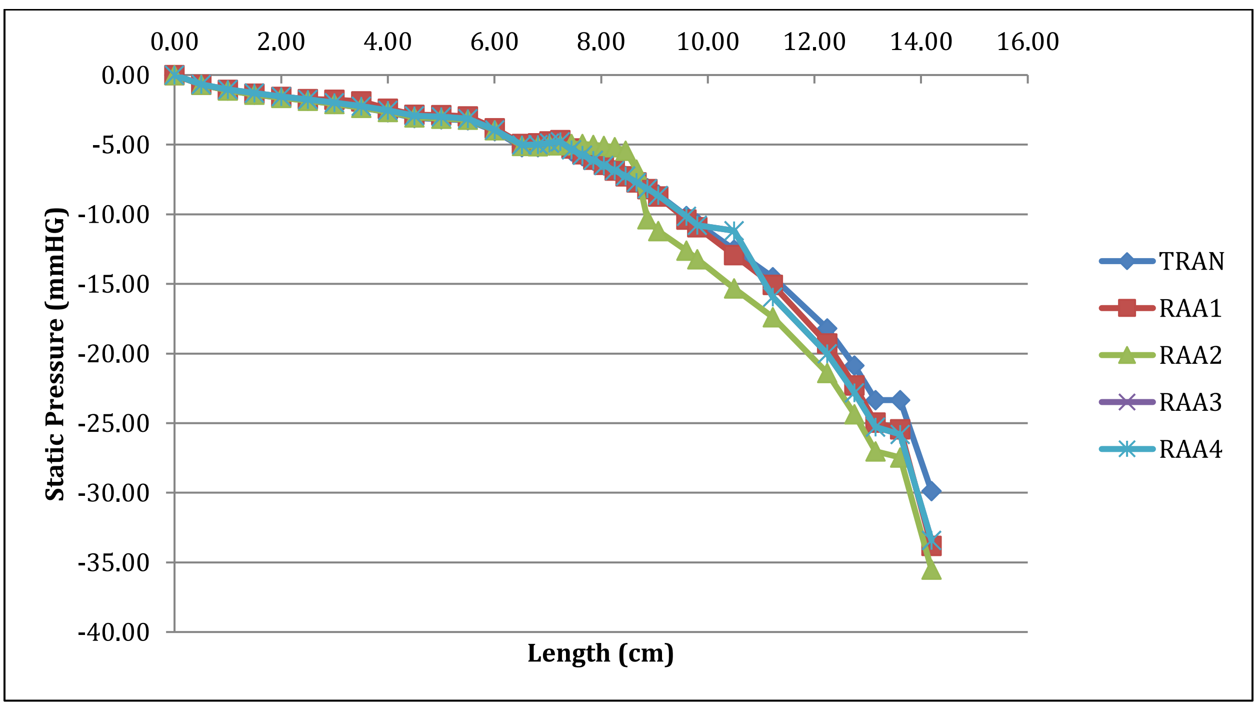


Fig. 41. Branch #1 pressure drop/ RAA location comparison for the highest blood flow/ adjusted.

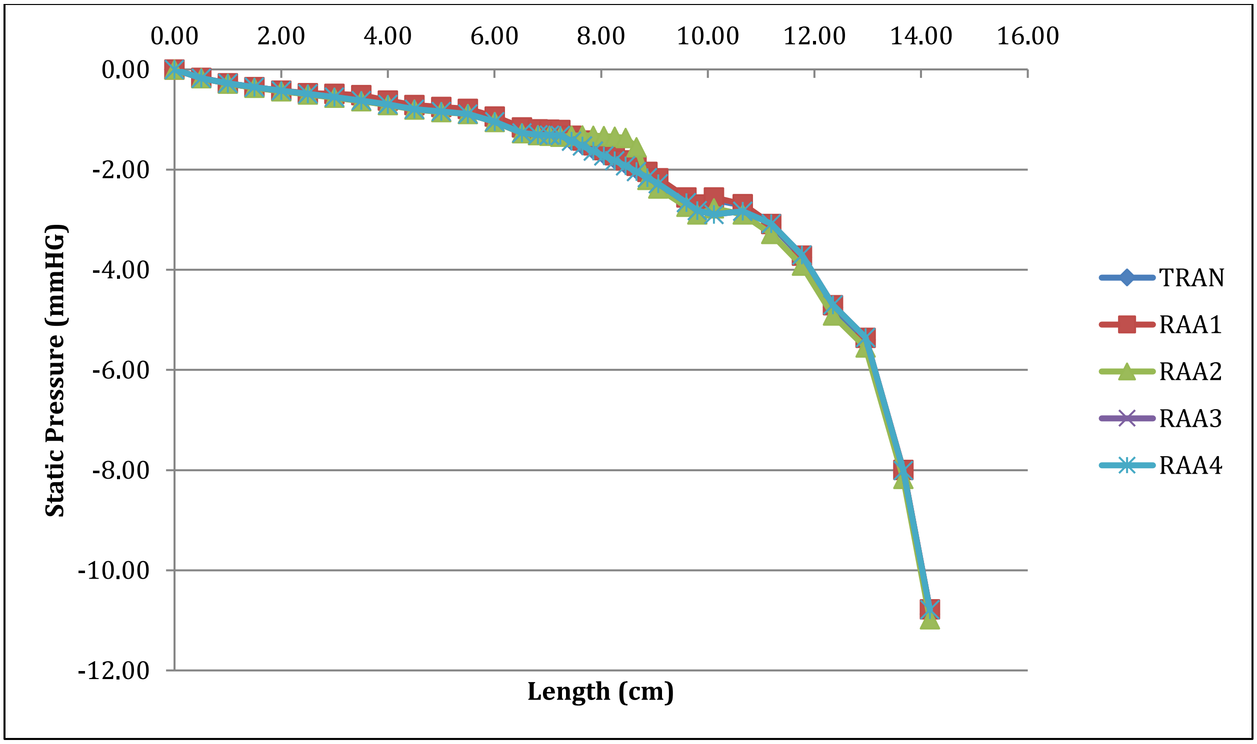


Fig. 42. Branch #2 pressure drop/ RAA location comparison for the lowest blood flow/ adjusted.

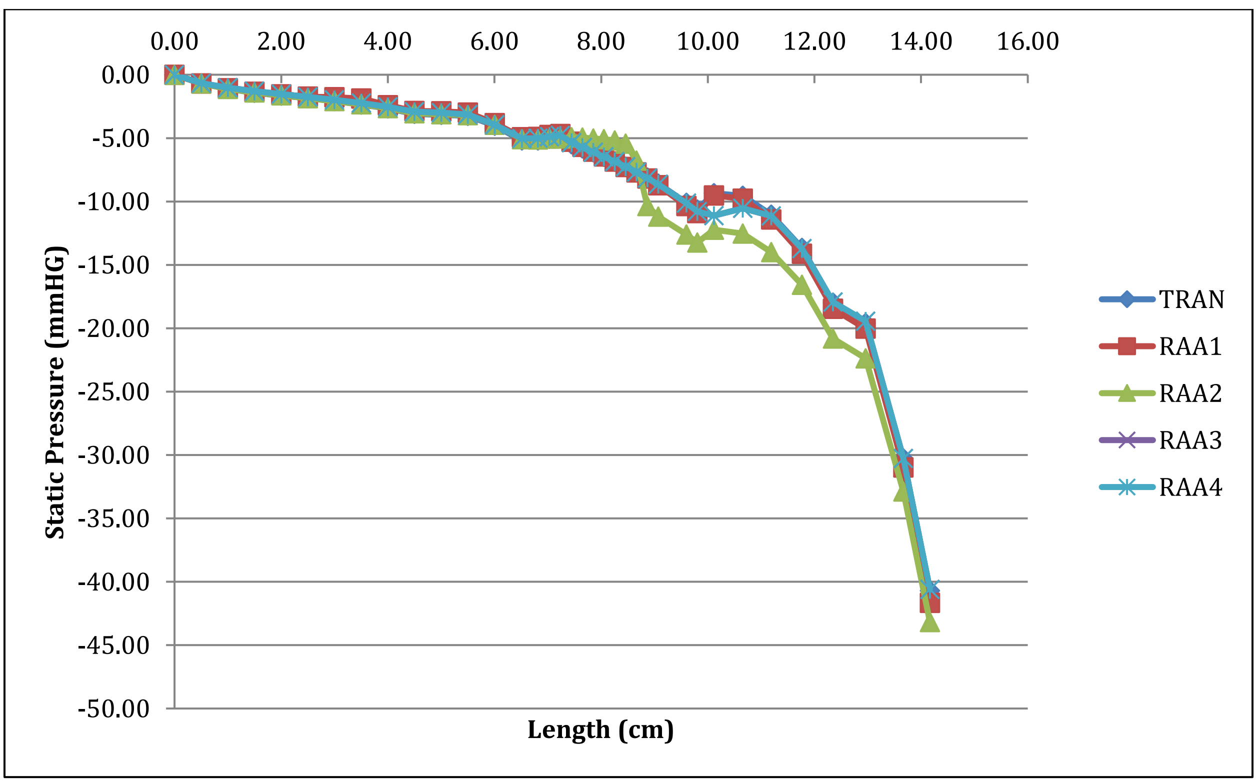


Fig. 43. Branch #2 pressure drop/ RAA location comparison for the highest blood flow/ adjusted.

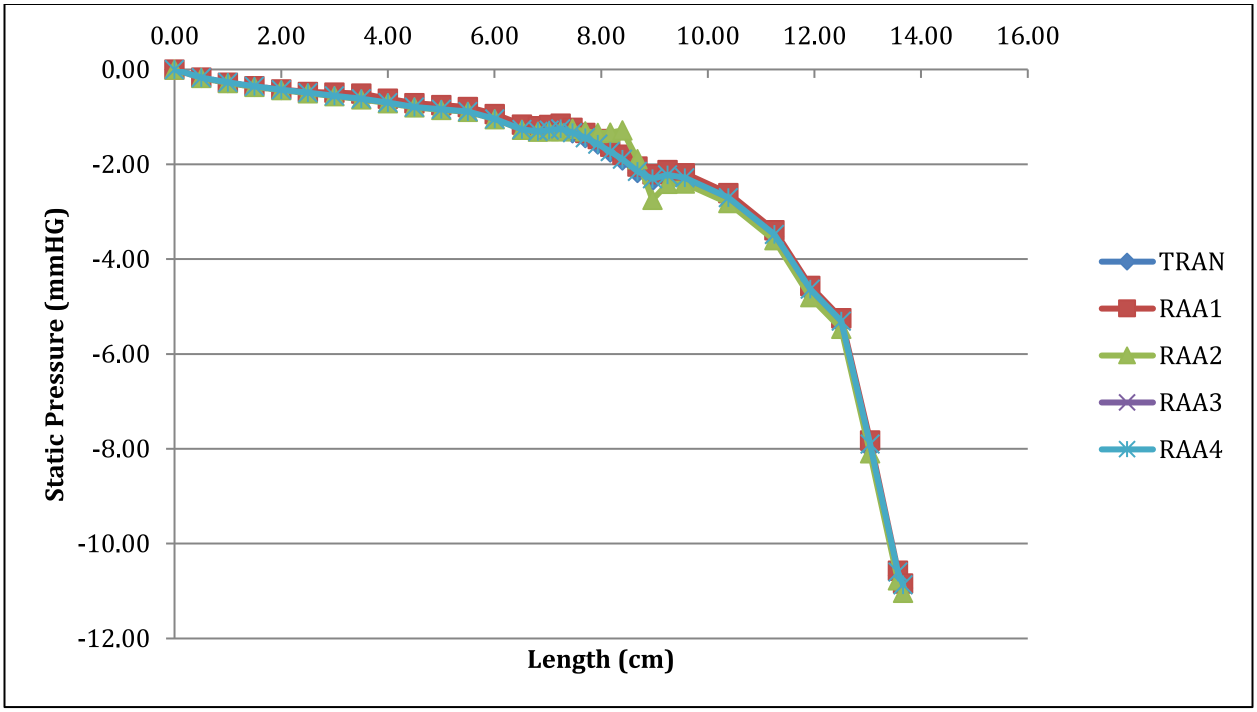


Fig. 44. Branch #3 pressure drop/ RAA location comparison for the lowest blood flow/ adjusted.

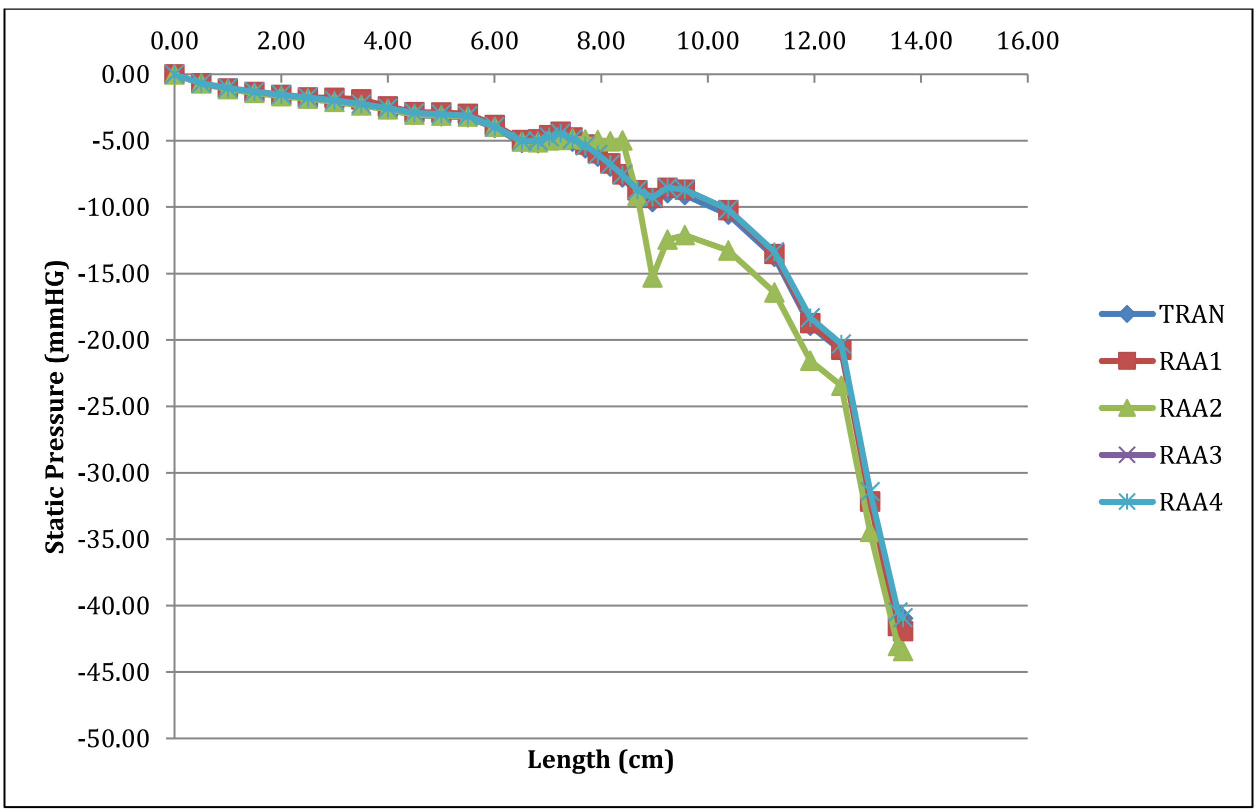


Fig. 45. Branch #3 pressure drop/ RAA location comparison for the highest blood flow/ adjusted.

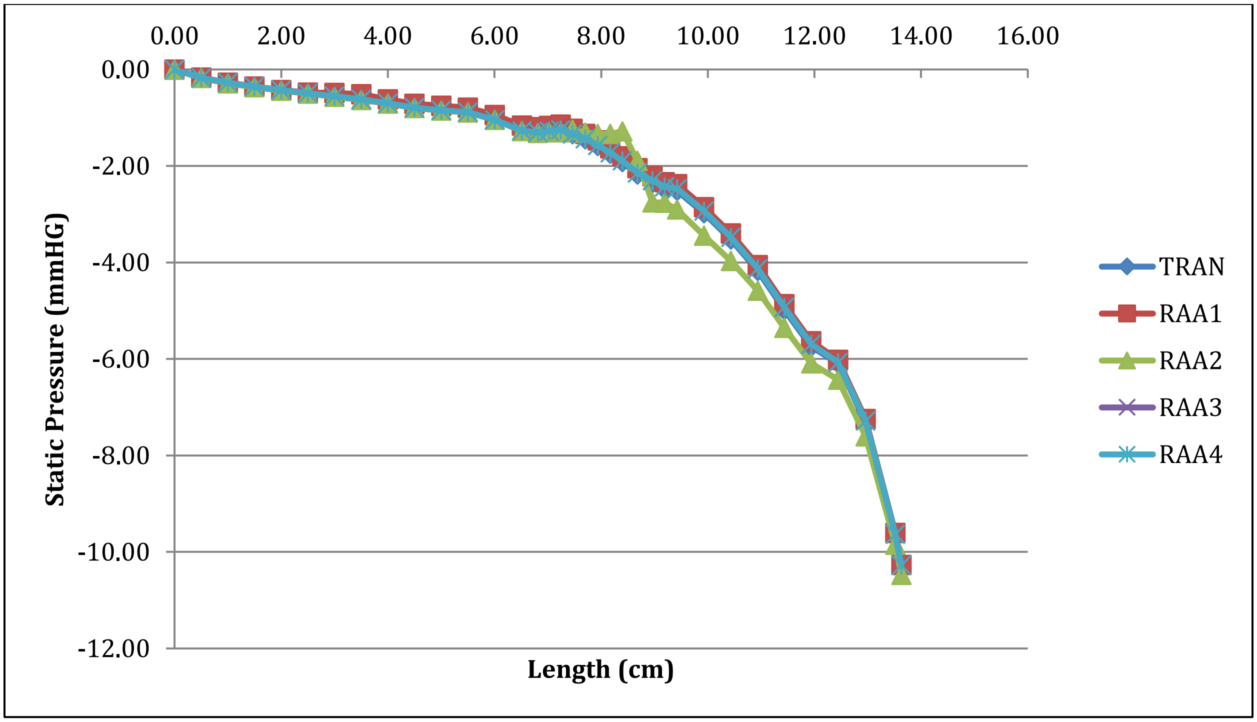


Fig. 46. Branch #4 pressure drop/ RAA location comparison for the lowest blood flow/ adjusted.

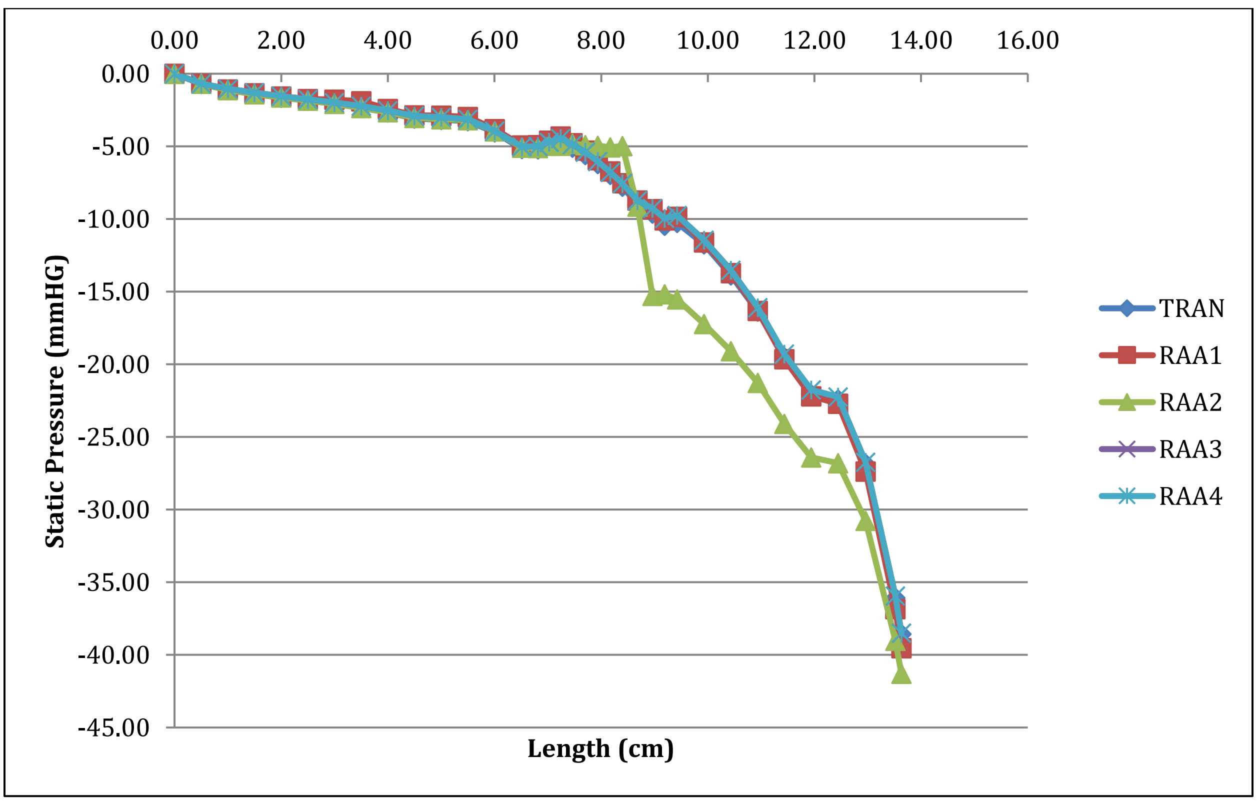


Fig. 47. Branch #4 pressure drop/ RAA location comparison for the highest blood flow/ adjusted.

A5.2 The Effect of RAA Size

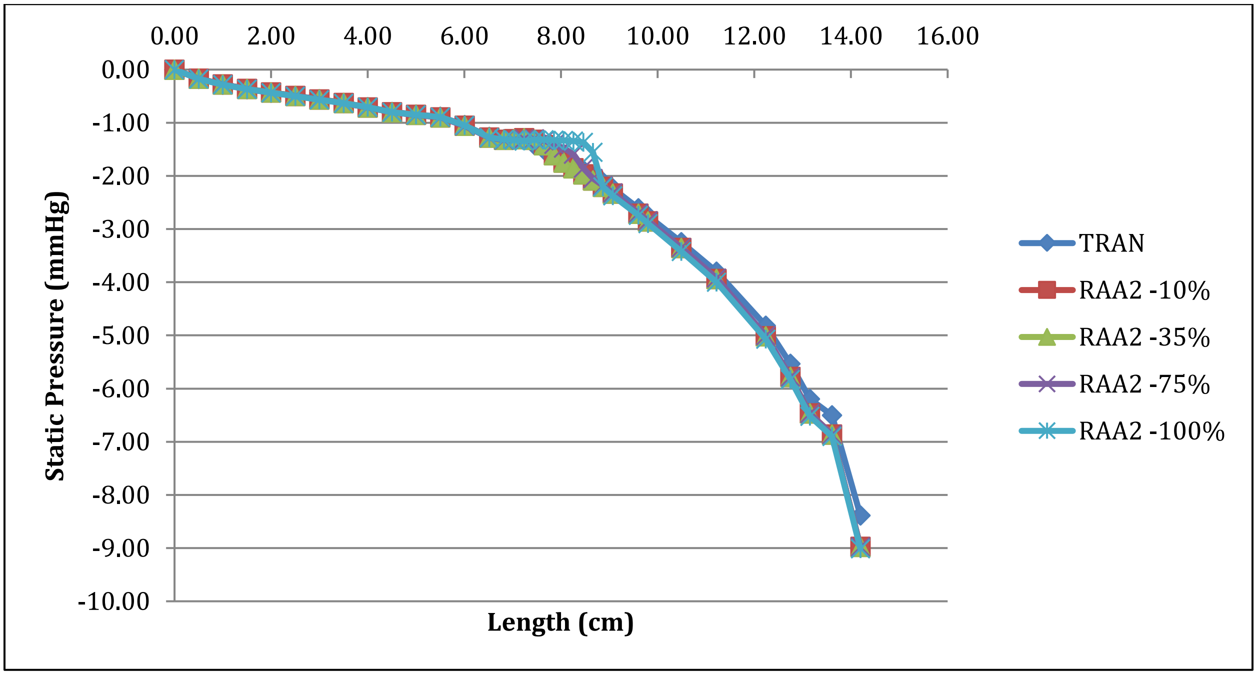


Fig. 48. Branch #1 pressure drop/ RAA2 size comparison for the lowest blood flow/ adjusted.

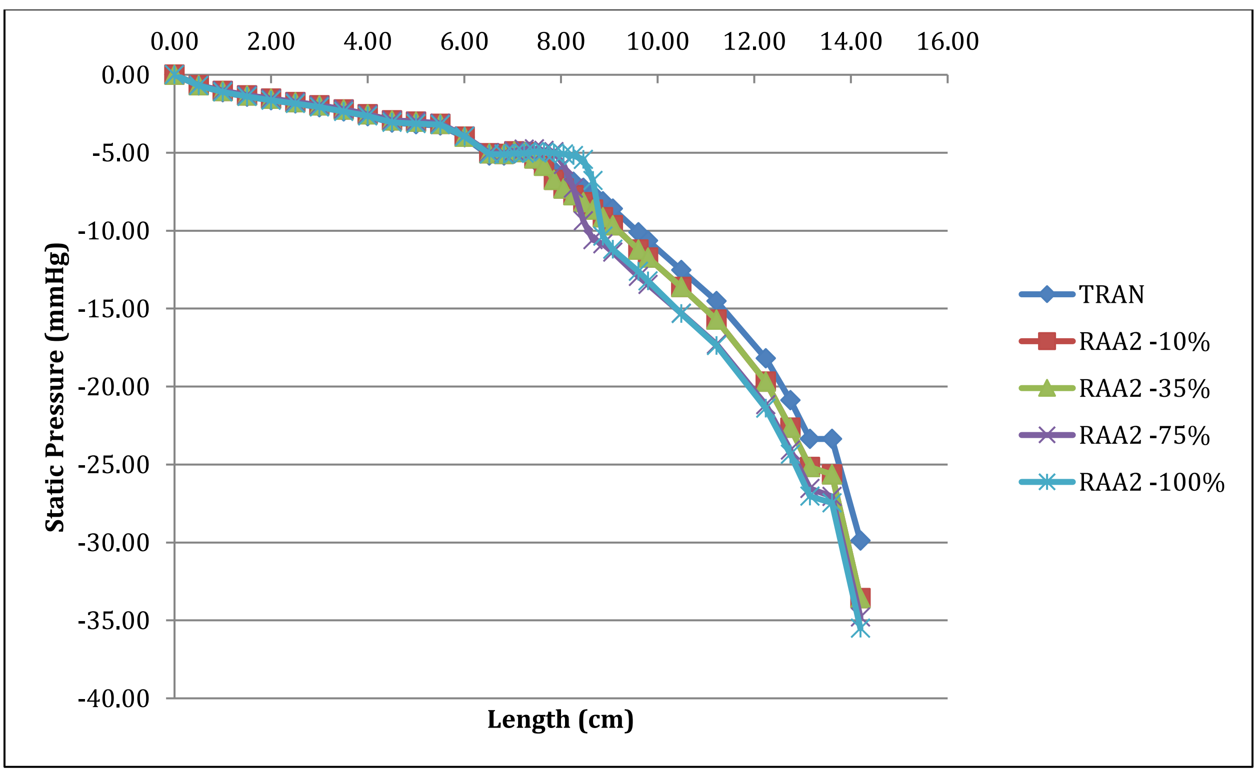


Fig. 49. Branch #1 pressure drop/ RAA2 size comparison for the highest blood flow/ adjusted.

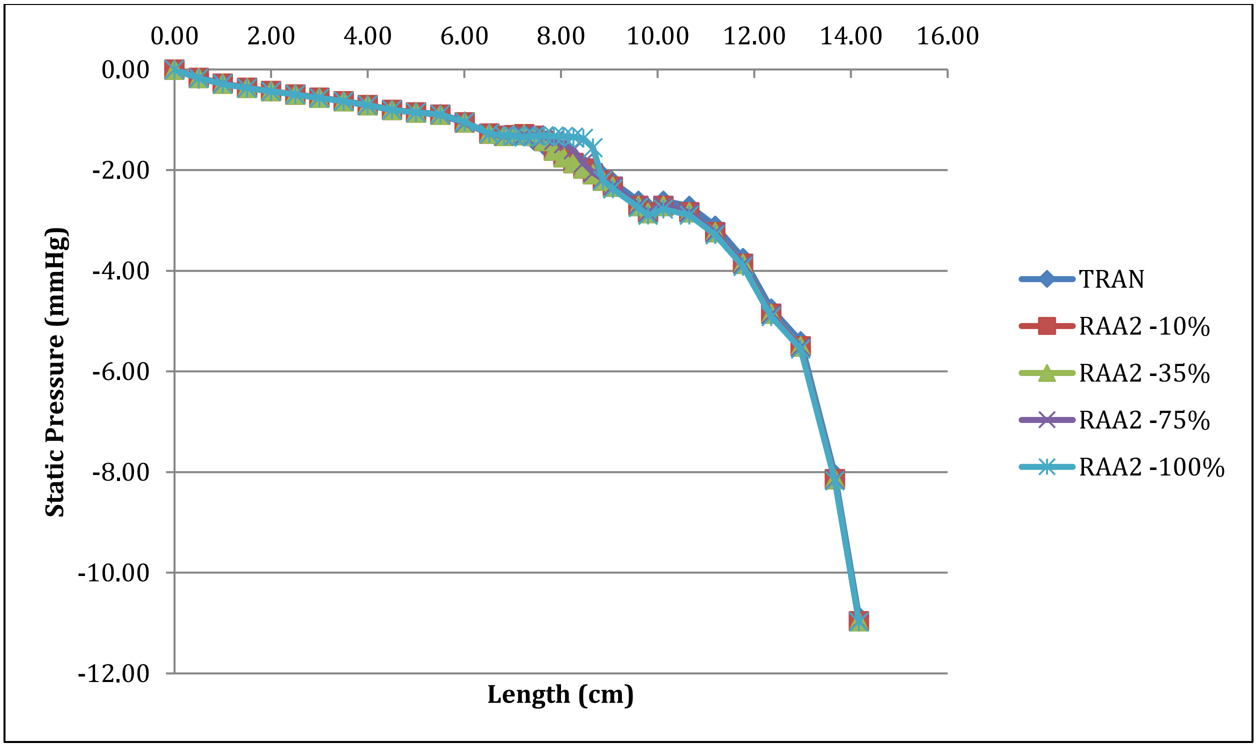


Fig. 50. Branch #2 pressure drop/ RAA2 size comparison for the lowest blood flow/ adjusted.

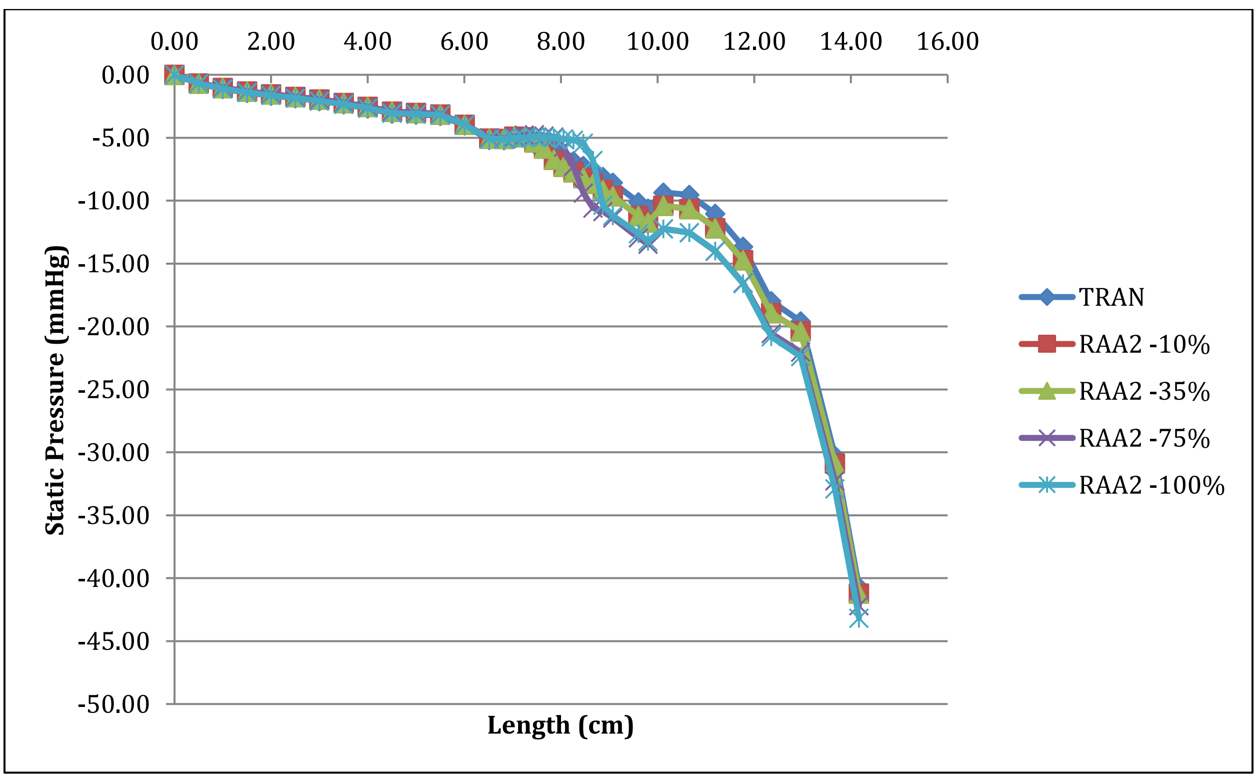


Fig. 51. Branch #2 pressure drop/ RAA2 size comparison for the highest blood flow/ adjusted.

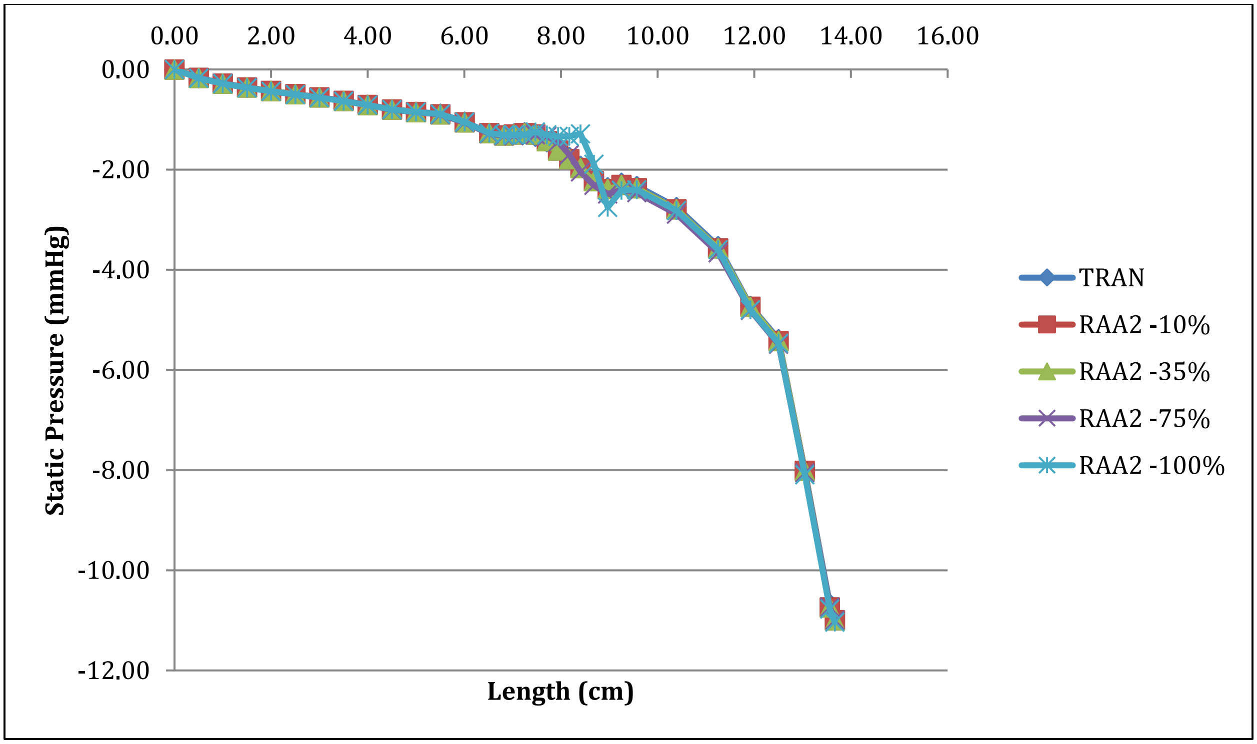


Fig. 52. Branch #3 pressure drop/ RAA2 size comparison for the lowest blood flow/ adjusted.

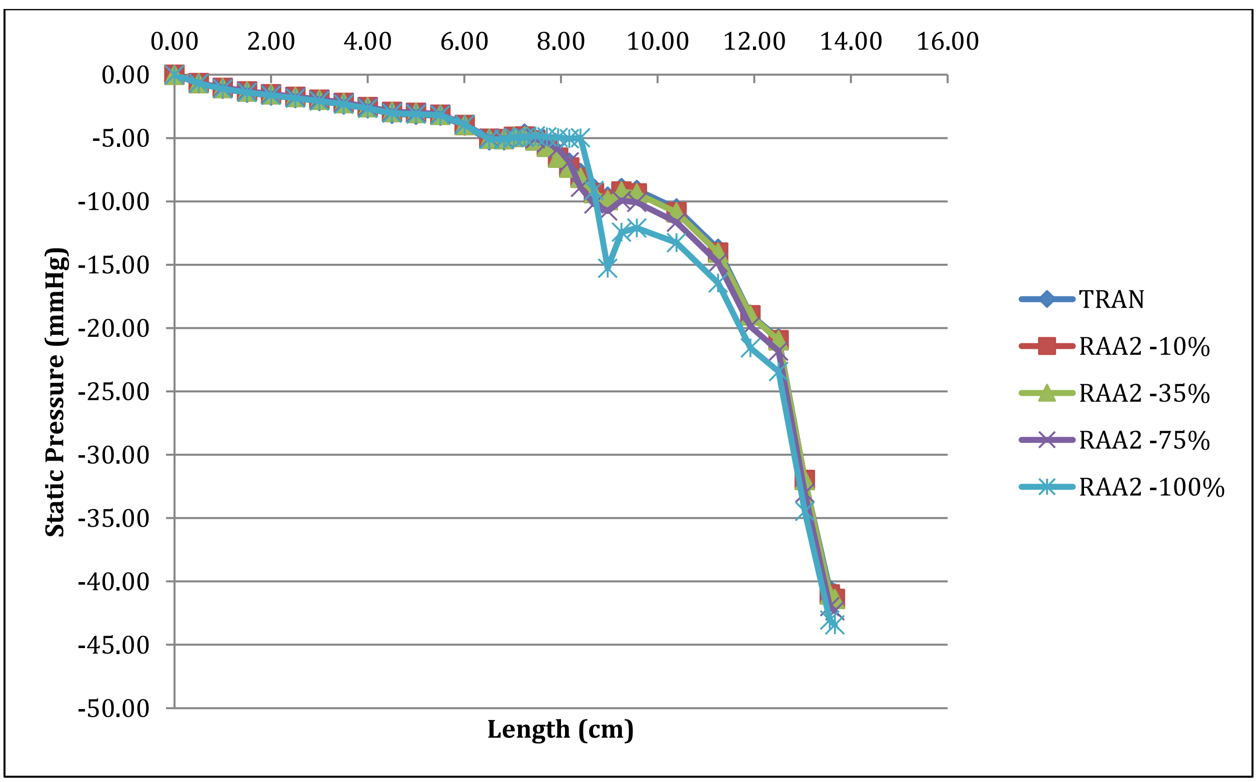


Fig. 53. Branch #3 pressure drop/ RAA2 size comparison for the highest blood Flow/ adjusted.

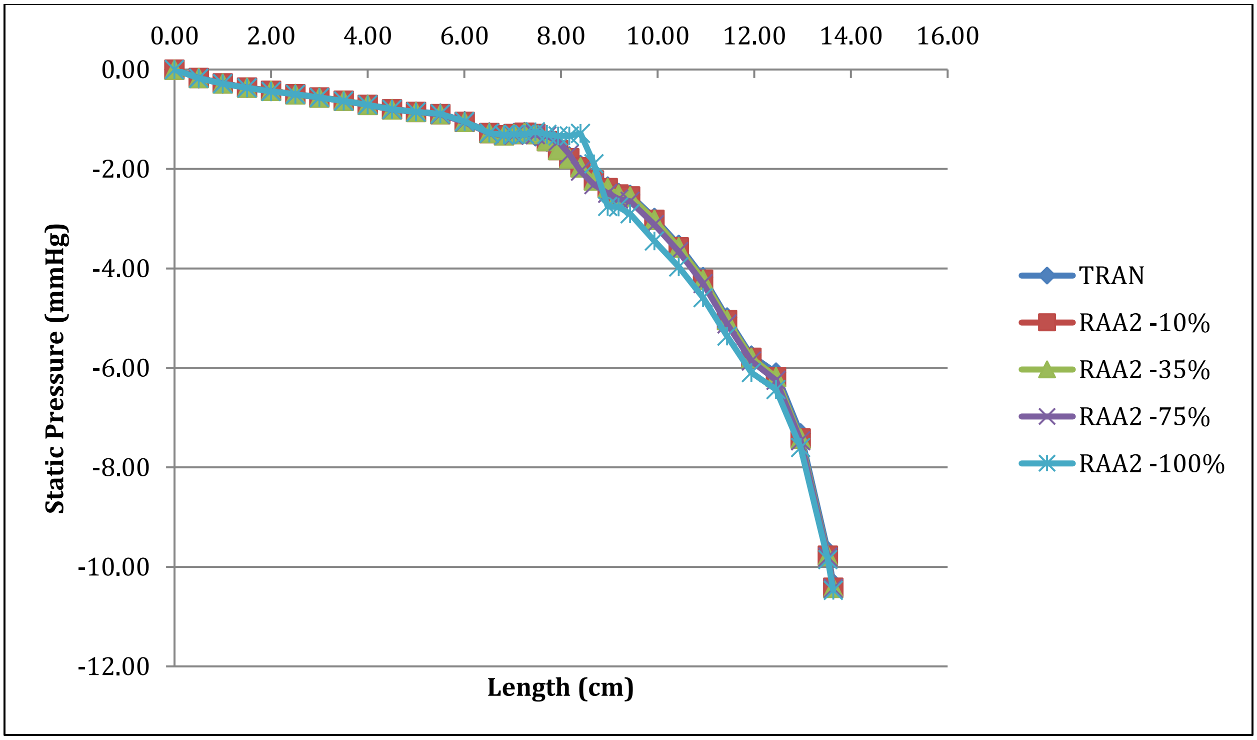


Fig. 54. Branch #4 pressure drop/ RAA2 size comparison for the lowest blood flow/ adjusted.

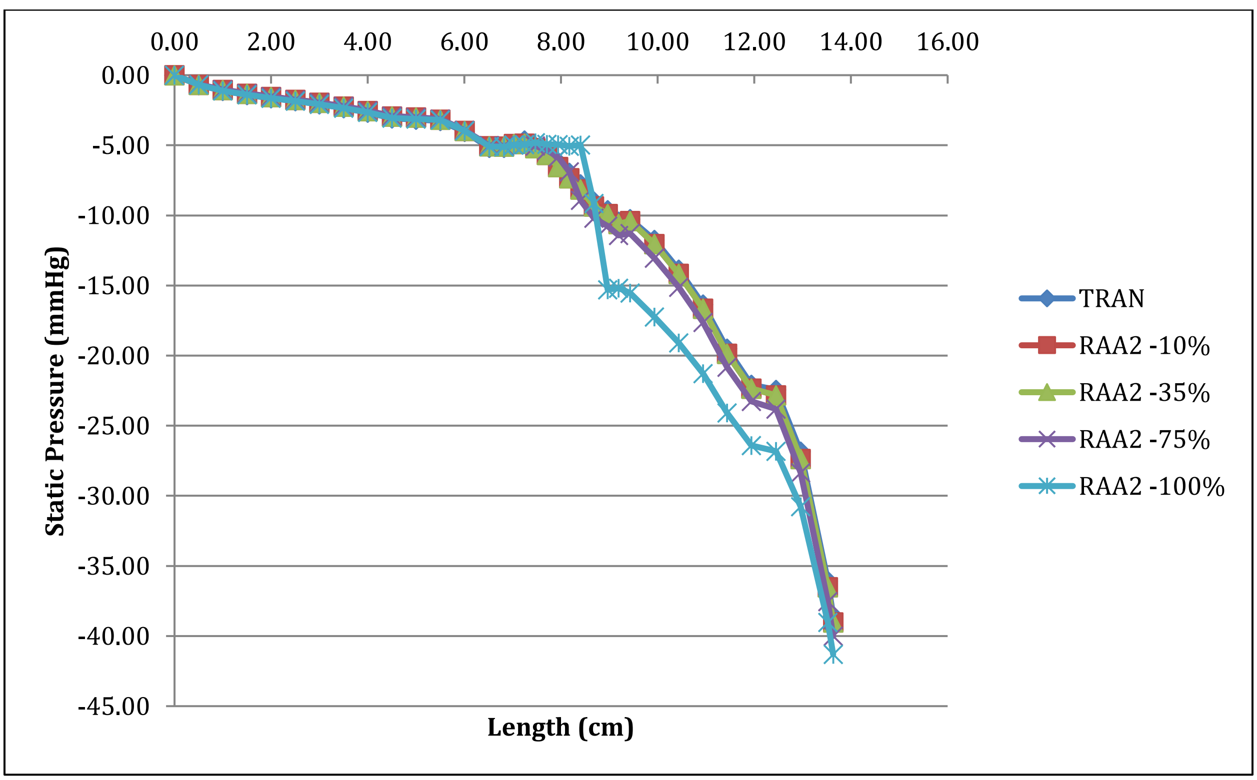


Fig. 55. Branch #4 pressure drop/ RAA2 size comparison for the highest blood flow/ adjusted.

A5.3 The Effect of the Blood Cycle

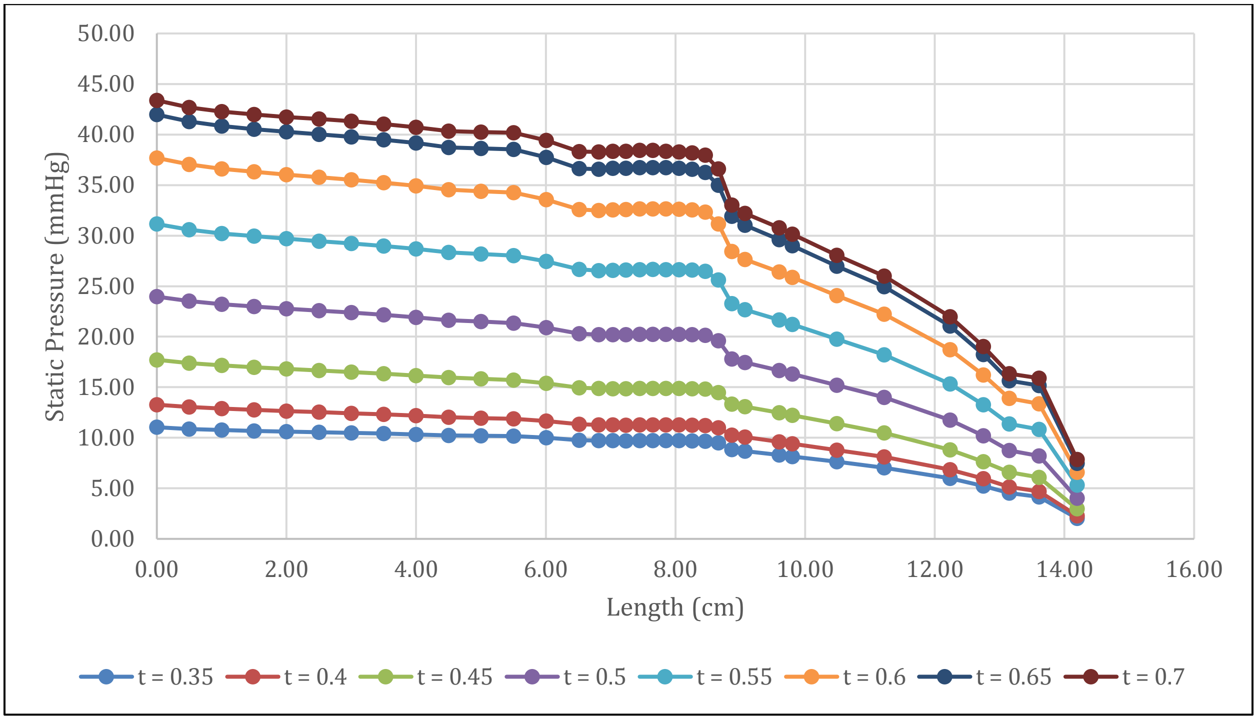


Fig. 56. Branch #1/ pressure change/ blood flow comparison.

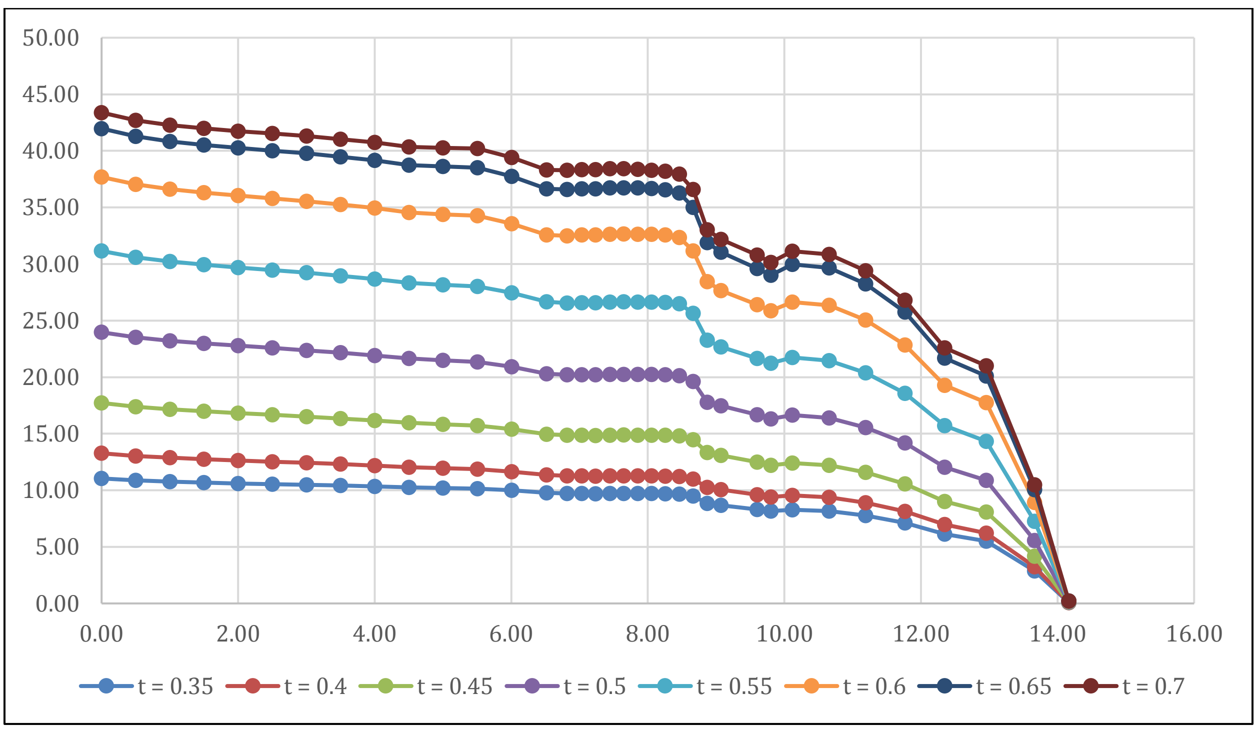


Fig. 57. Branch #2/ pressure change/ blood flow comparison.

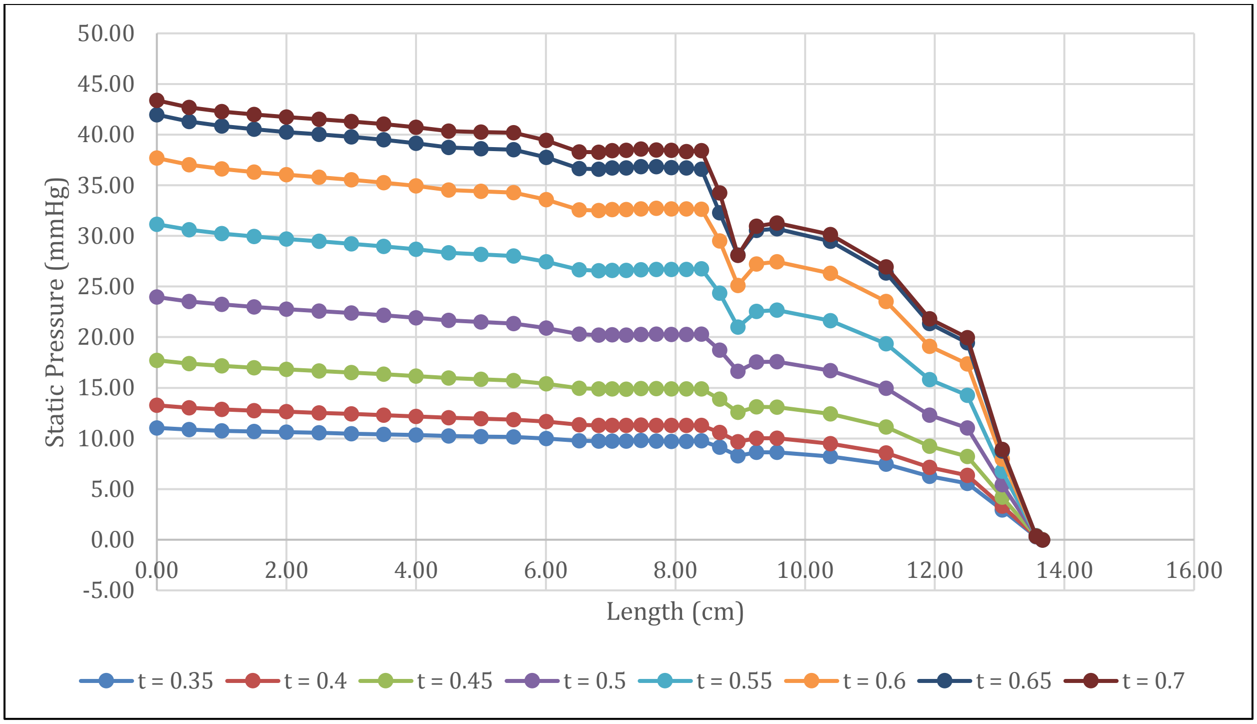


Fig. 58. Branch #3/ pressure change/ blood flow comparison.

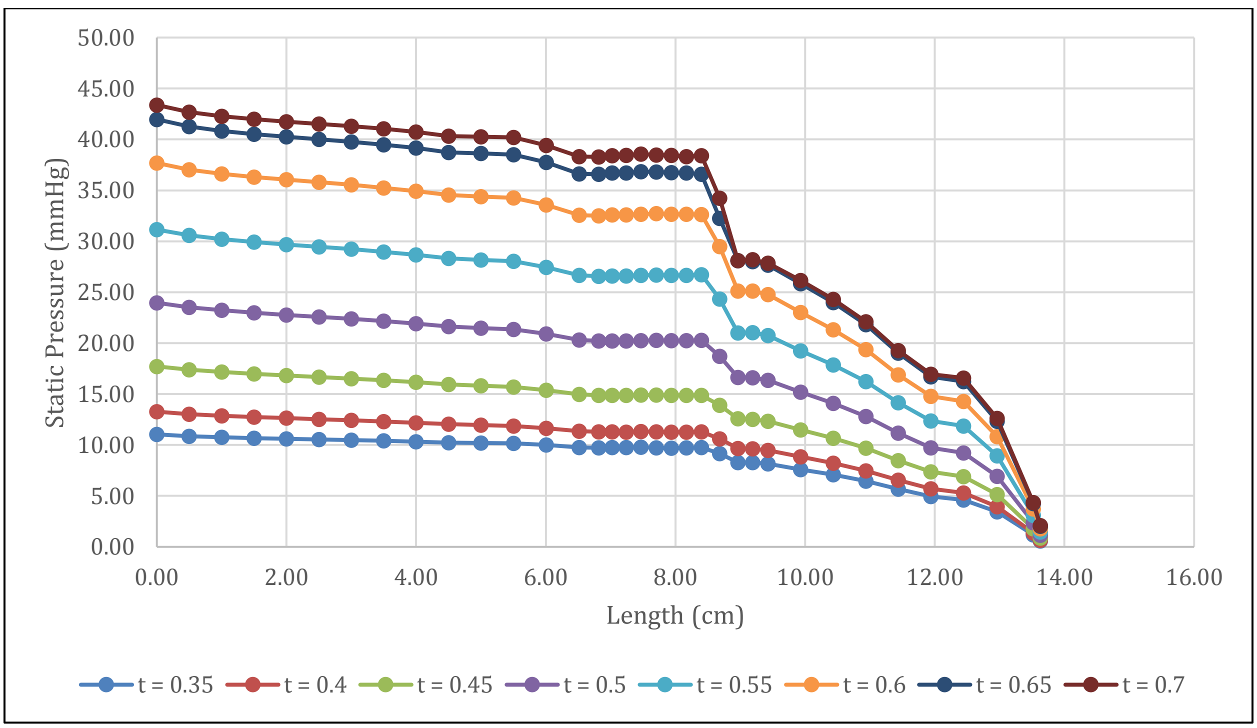


Fig. 59. Branch #4/ pressure change/ blood flow comparison.

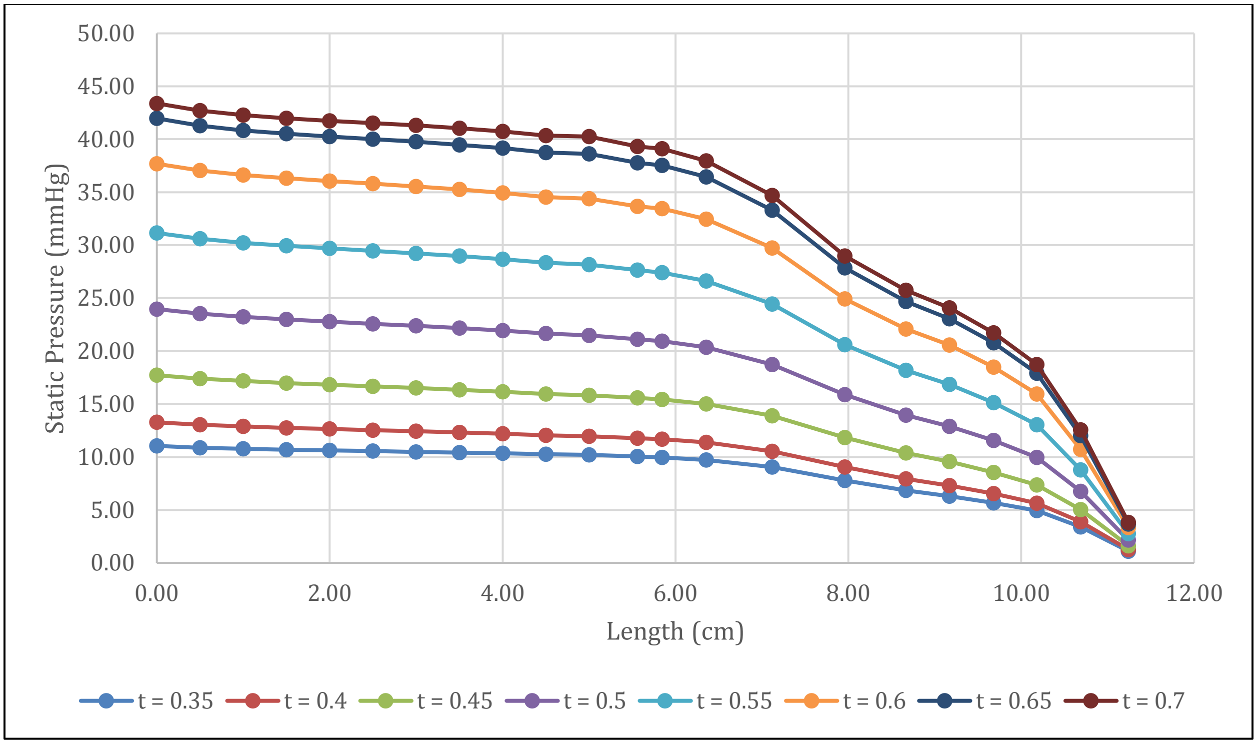


Fig. 60. Branch #5/ pressure change/ blood flow comparison.

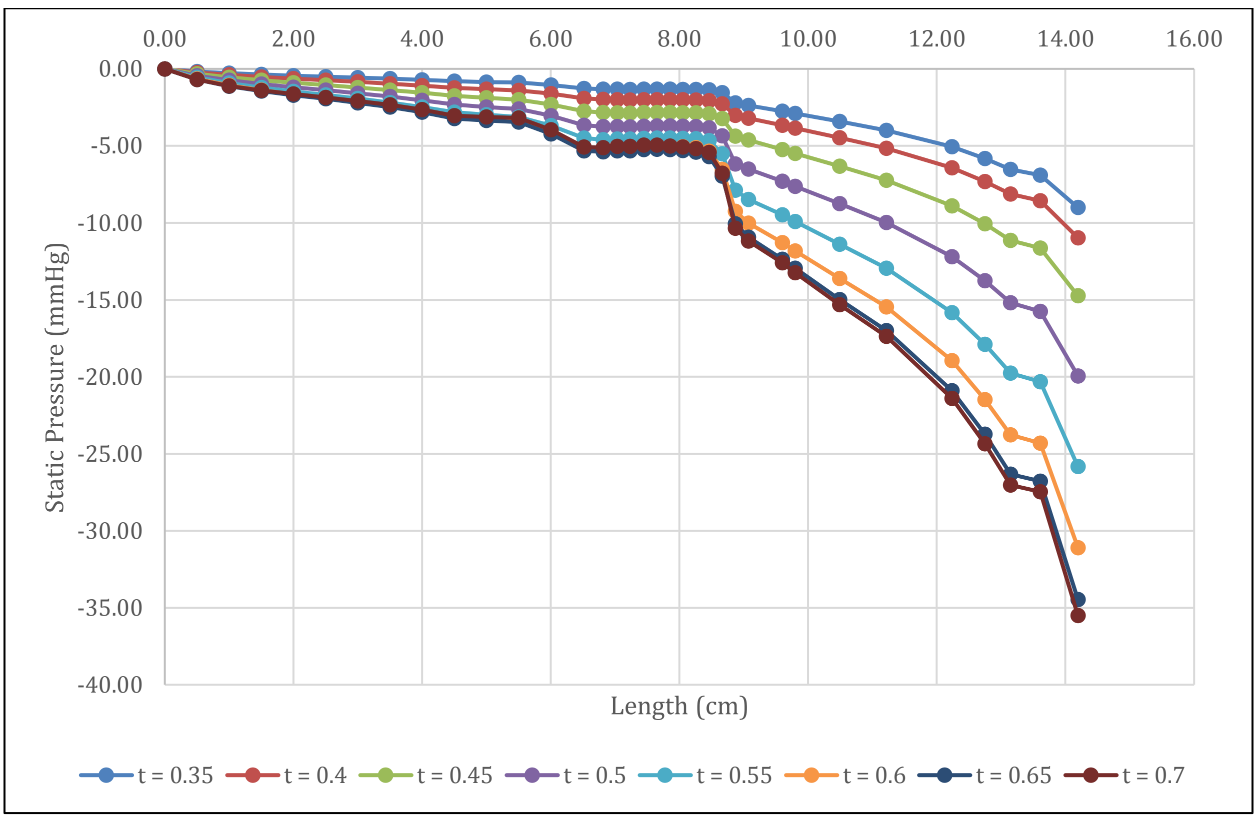


Fig. 61. Branch #1/ pressure drop/ blood flow comparison/ adjusted.

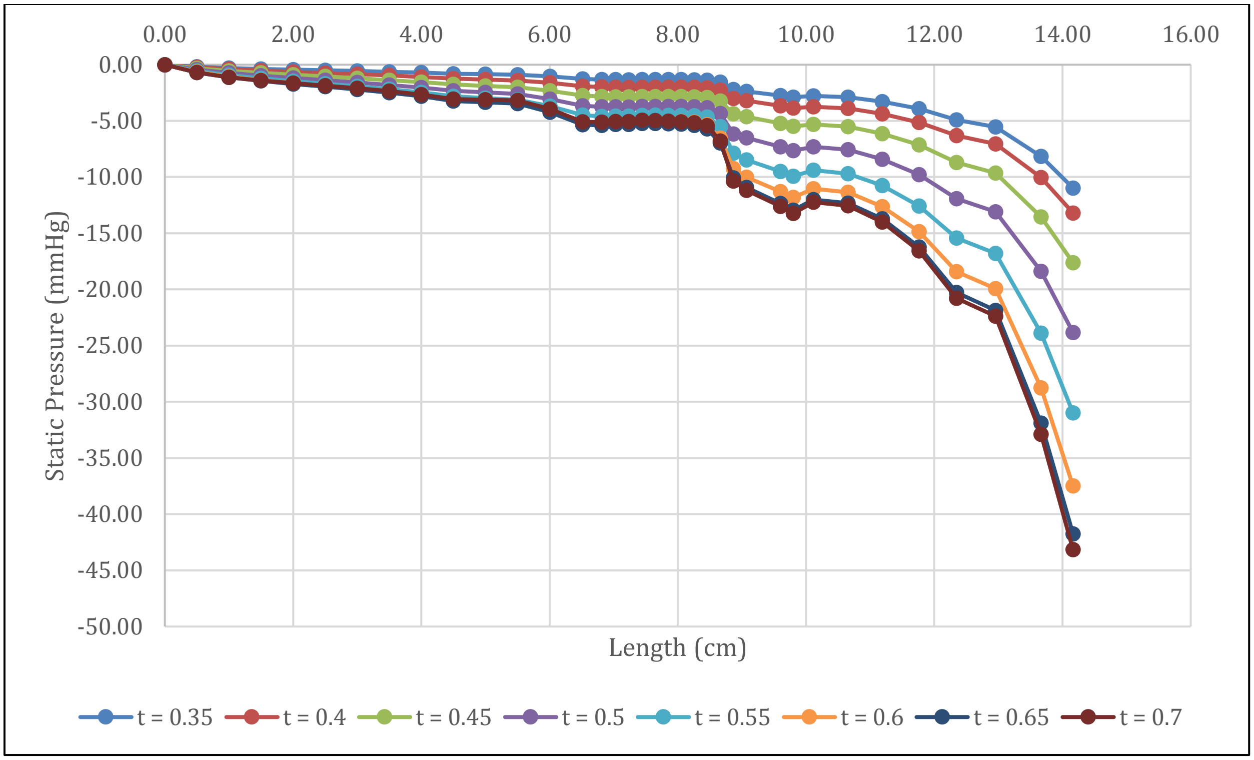


Fig. 62. Branch #2/ pressure drop/ blood flow comparison/ adjusted.

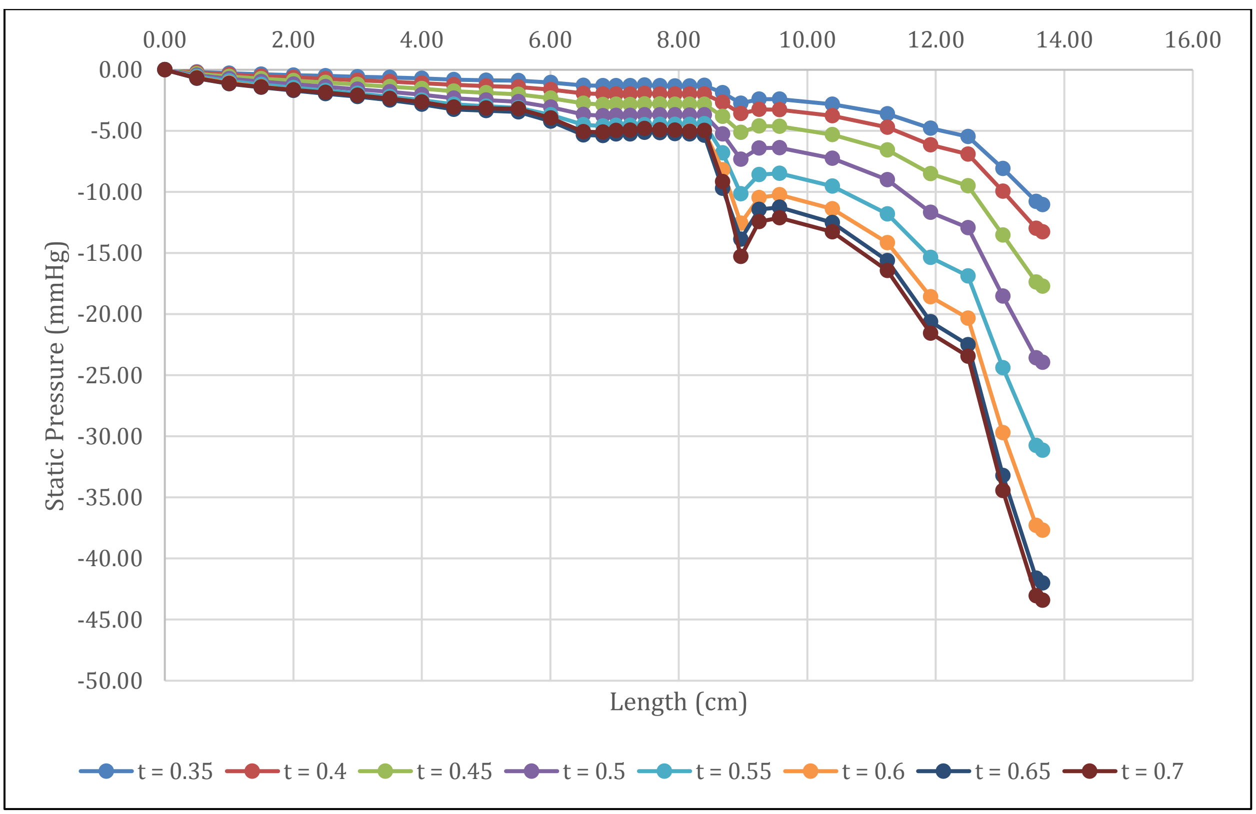


Fig. 63. Branch #3/ pressure drop/ blood flow comparison/ adjusted.

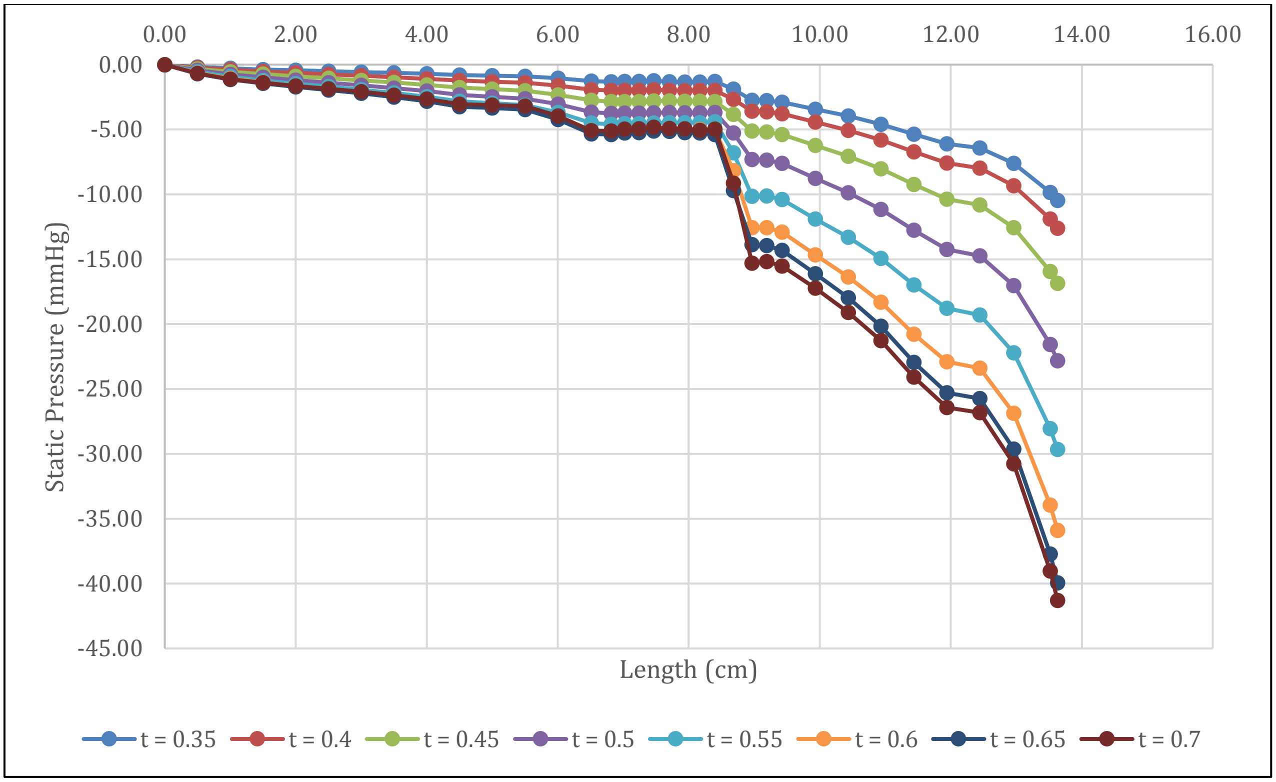


Fig. 64. Branch #4/ pressure drop/ blood flow comparison/ adjusted.

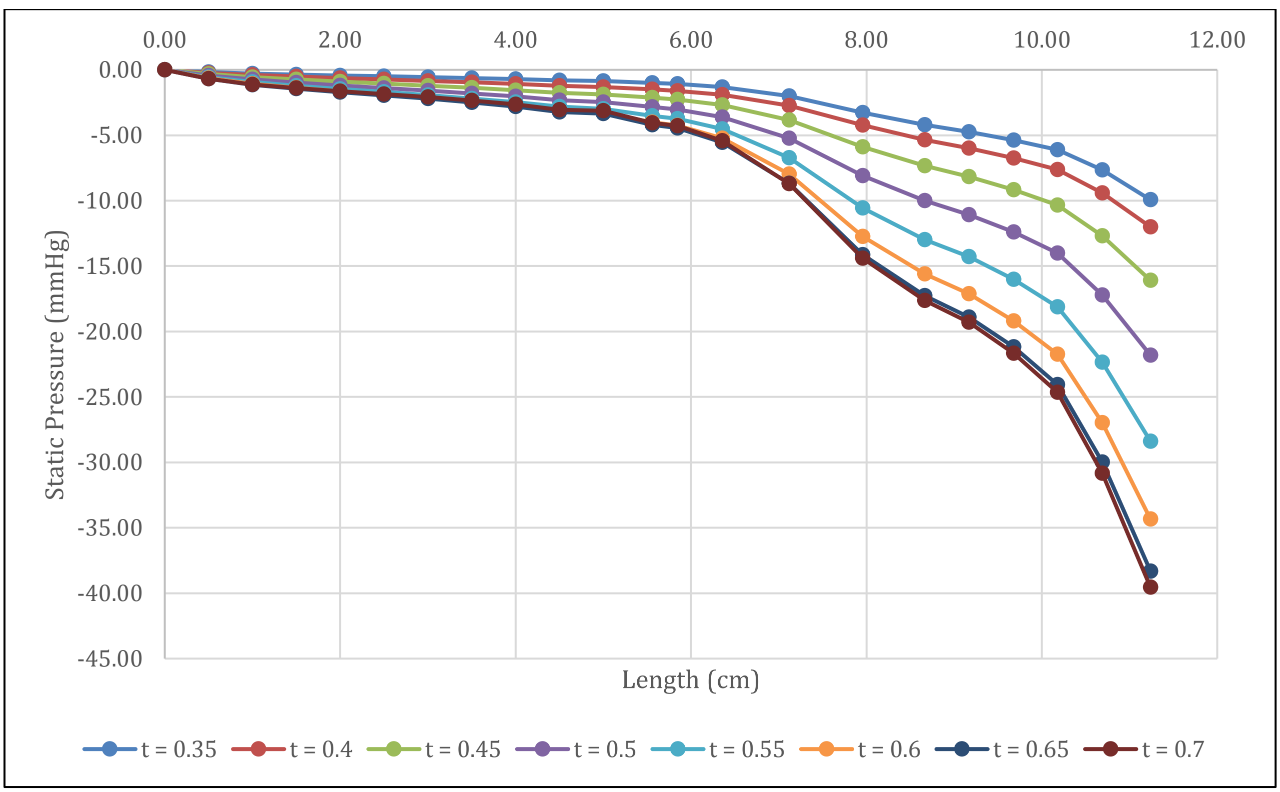


Fig. 65. Branch #5/ pressure drop/ blood flow comparison/ adjusted.

Appendix 6: X-RAA Sequences

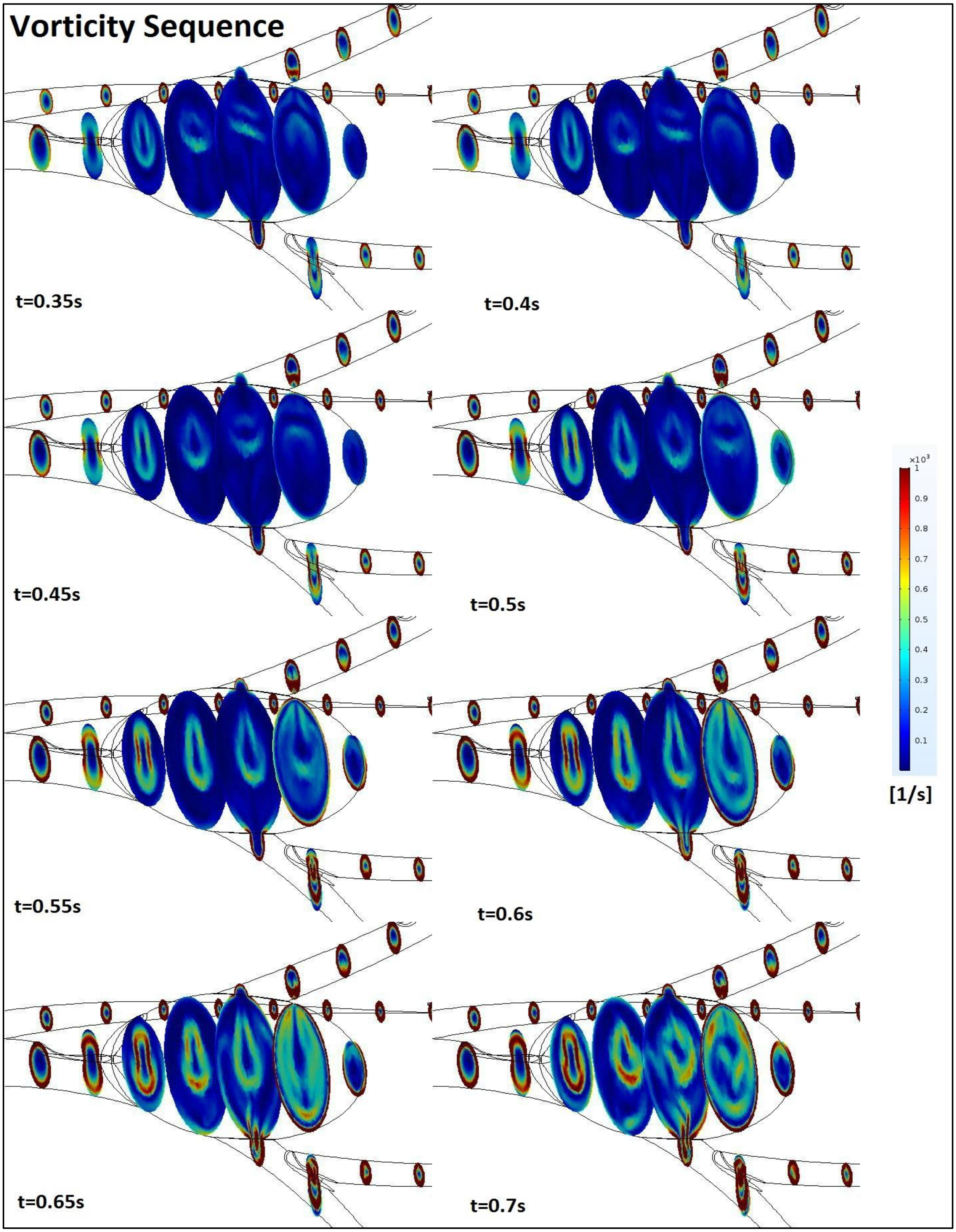


Fig. 66. X-RAA / Vorticity Sequence 1/2

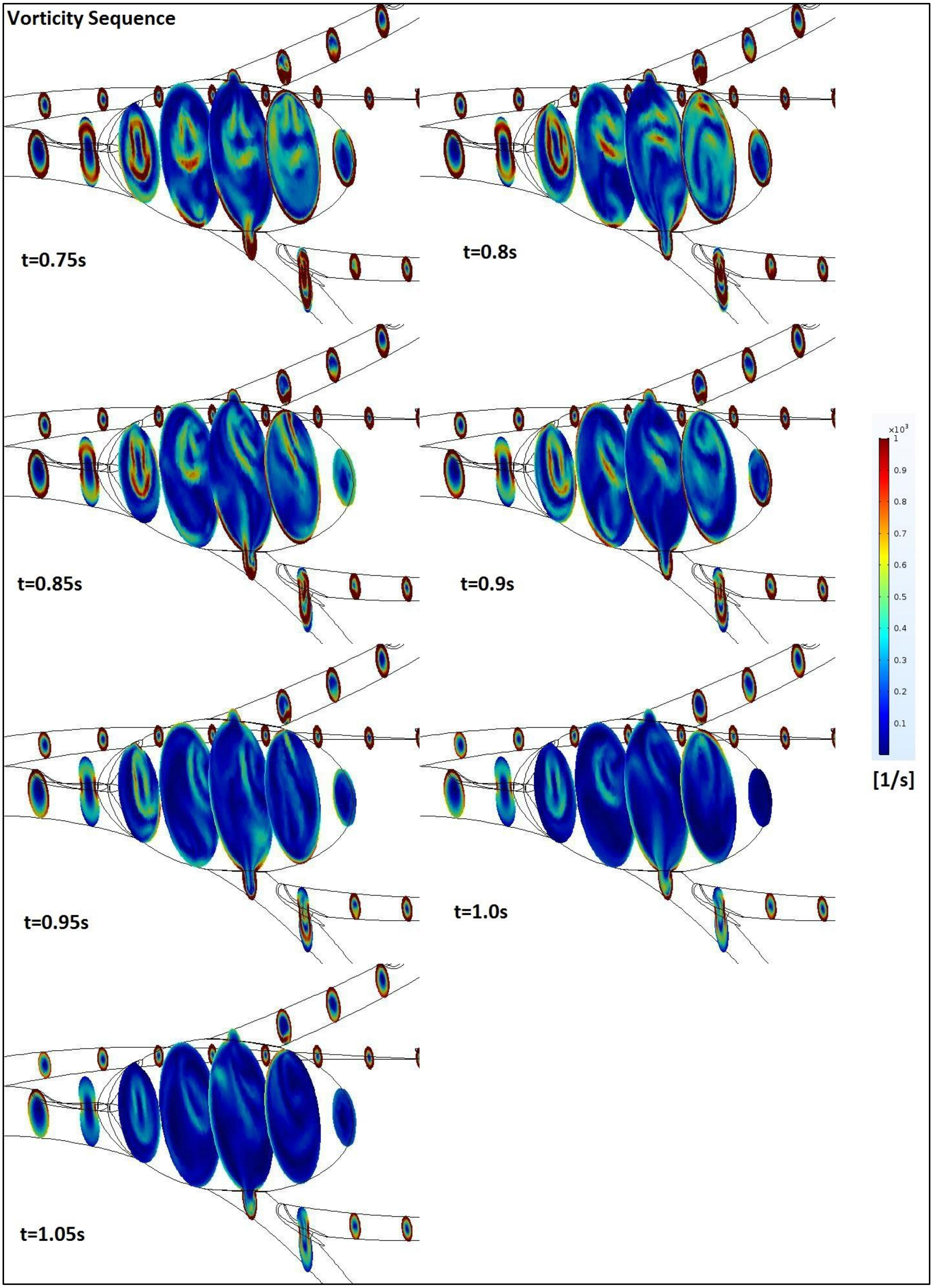


Fig. 67. X-RAA / Vorticity Sequence 2/2

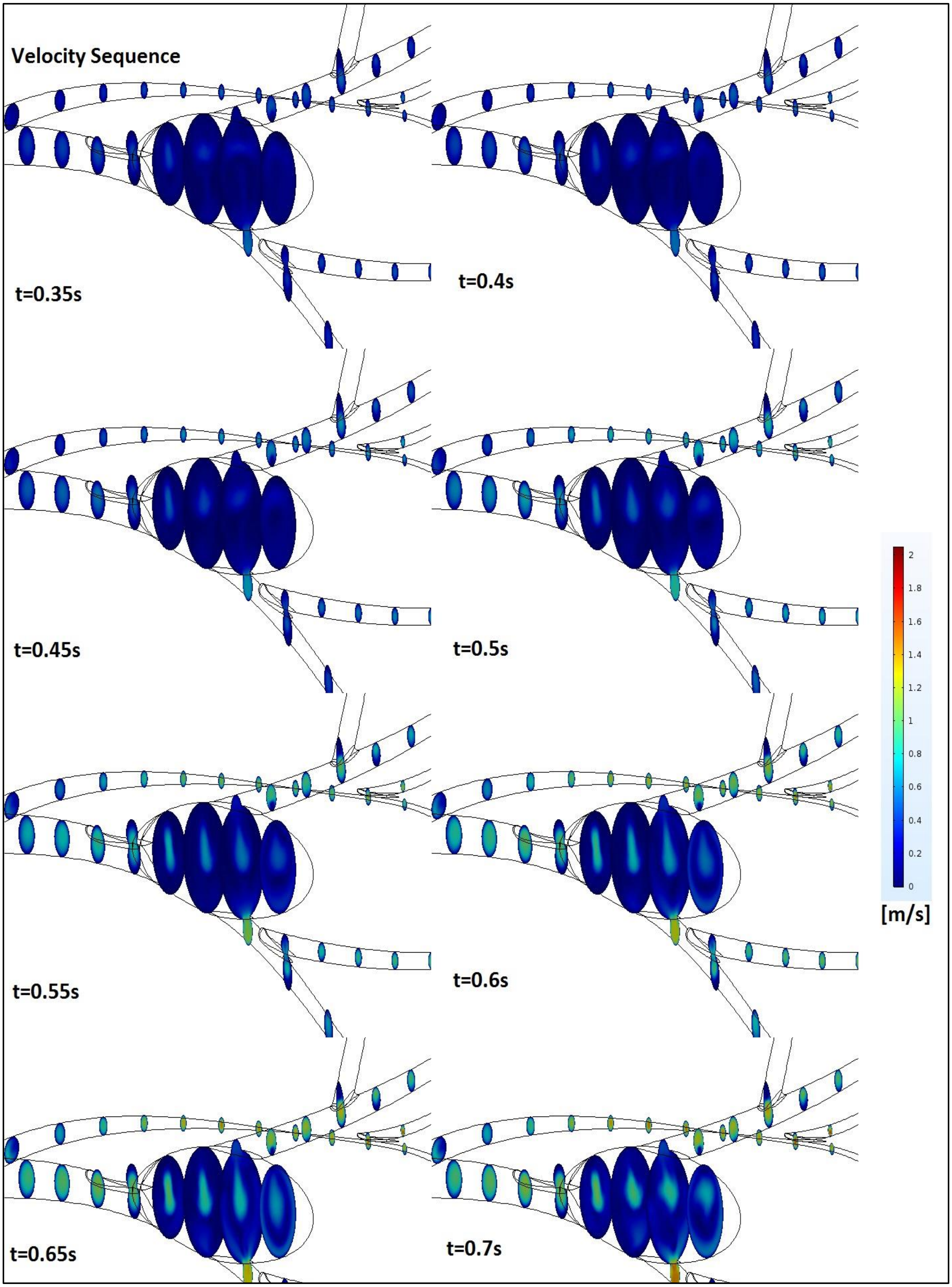


Fig. 68. X-RAA / Velocity sequence 1/2

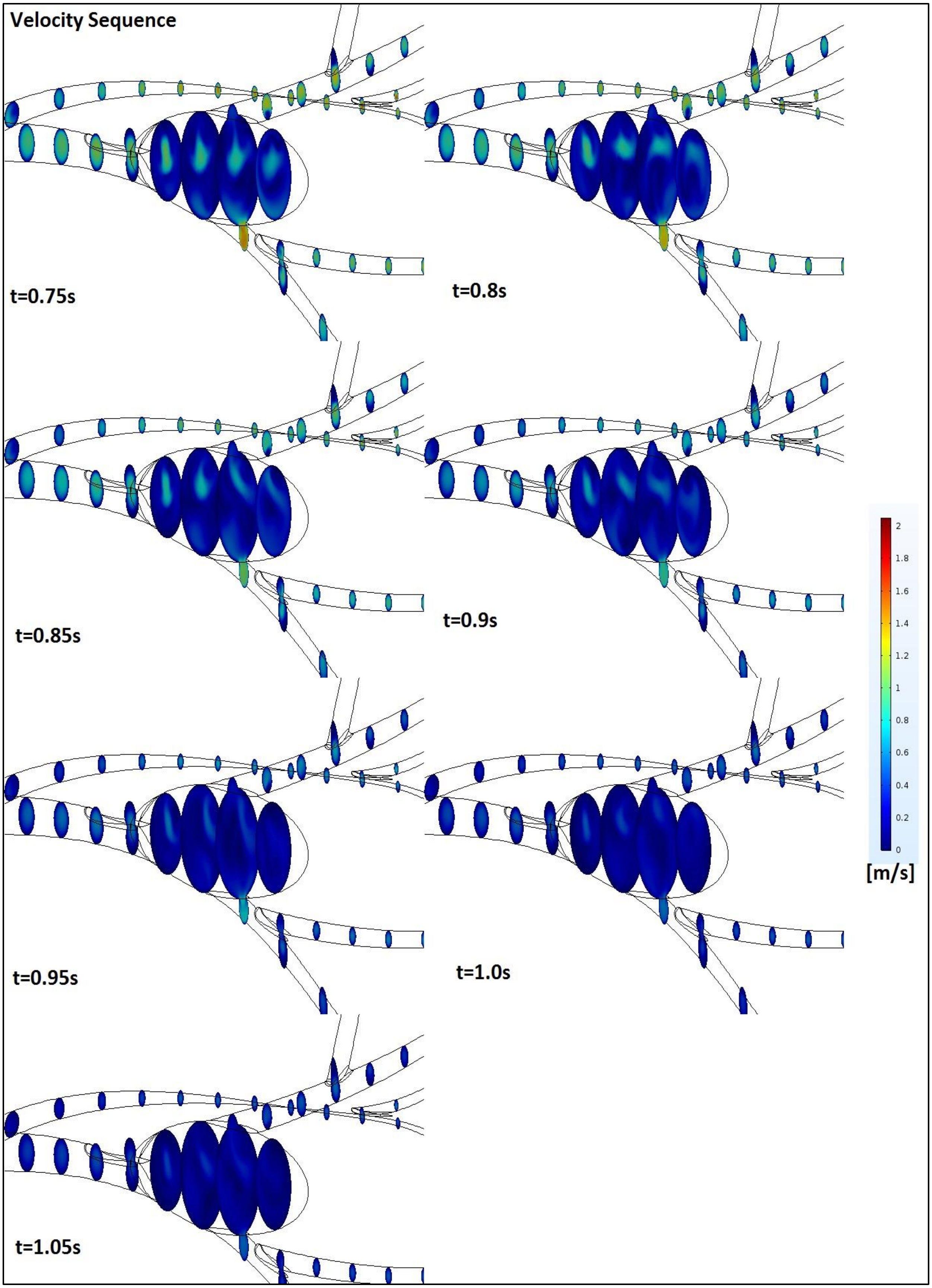


Fig. 69. X-RAA / Velocity sequence 2/2

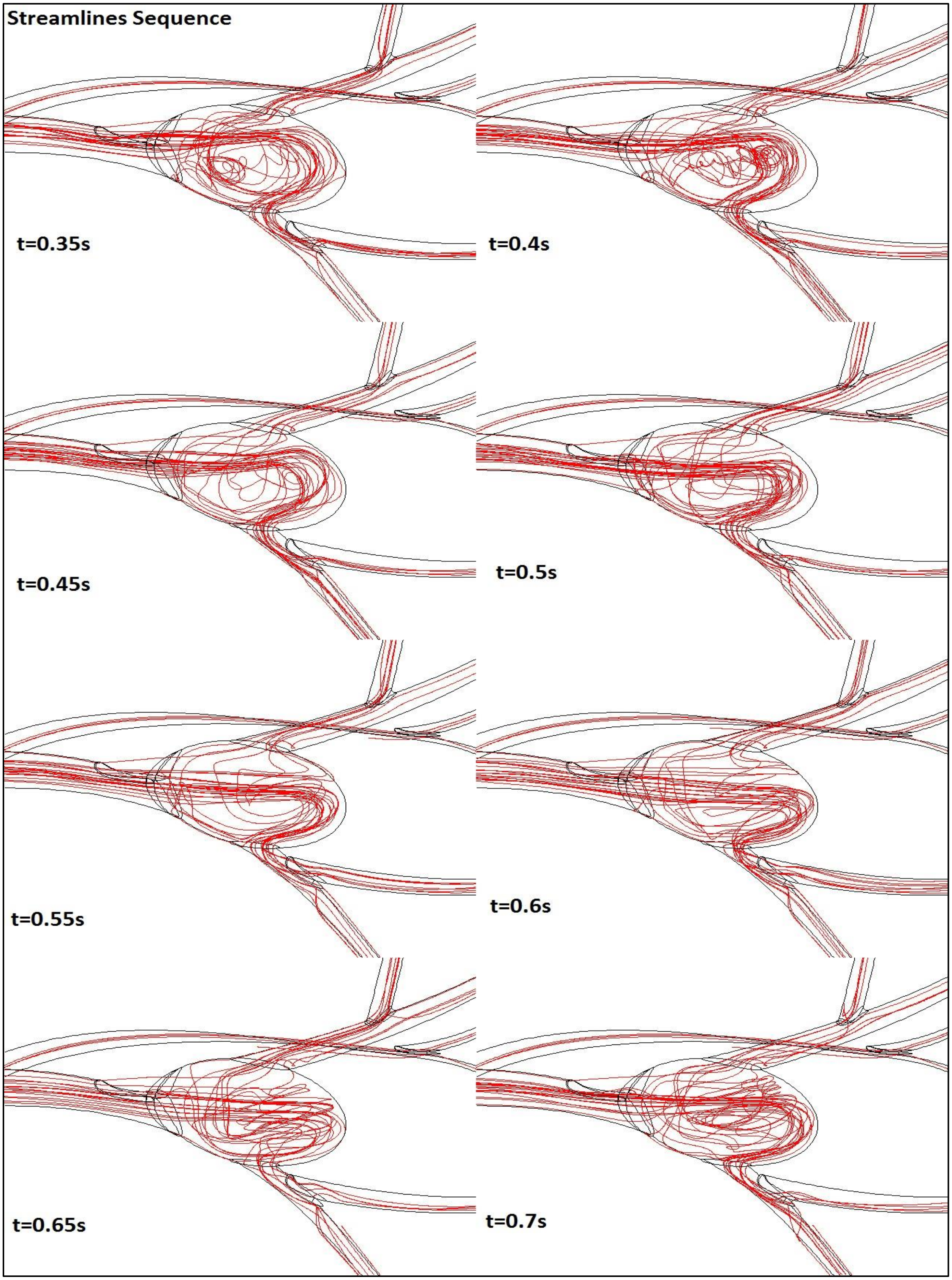


Fig. 70. X-RAA / Streamlines sequence 1/2

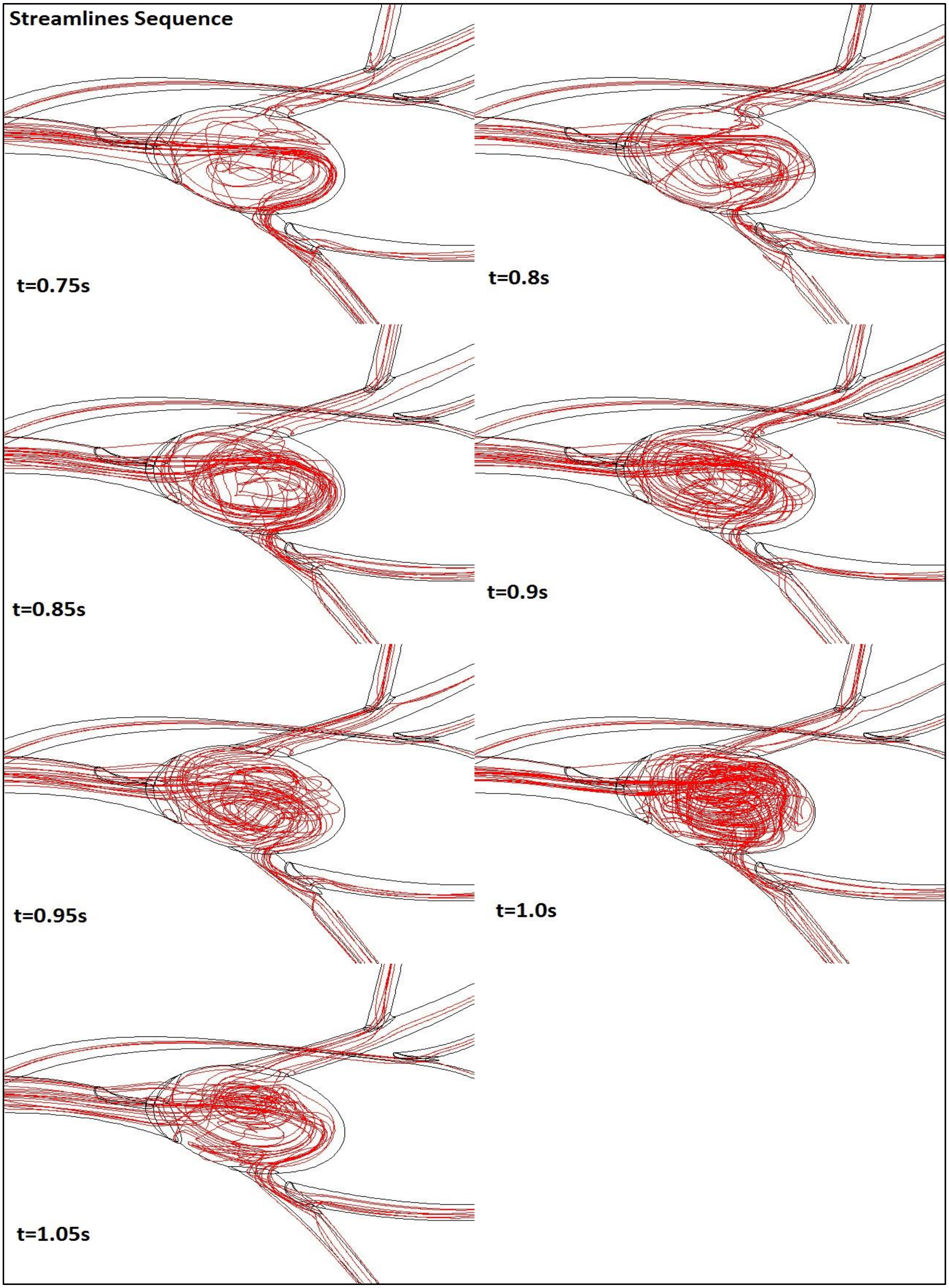


Fig. 71. X-RAA / Streamlines sequence 2/2

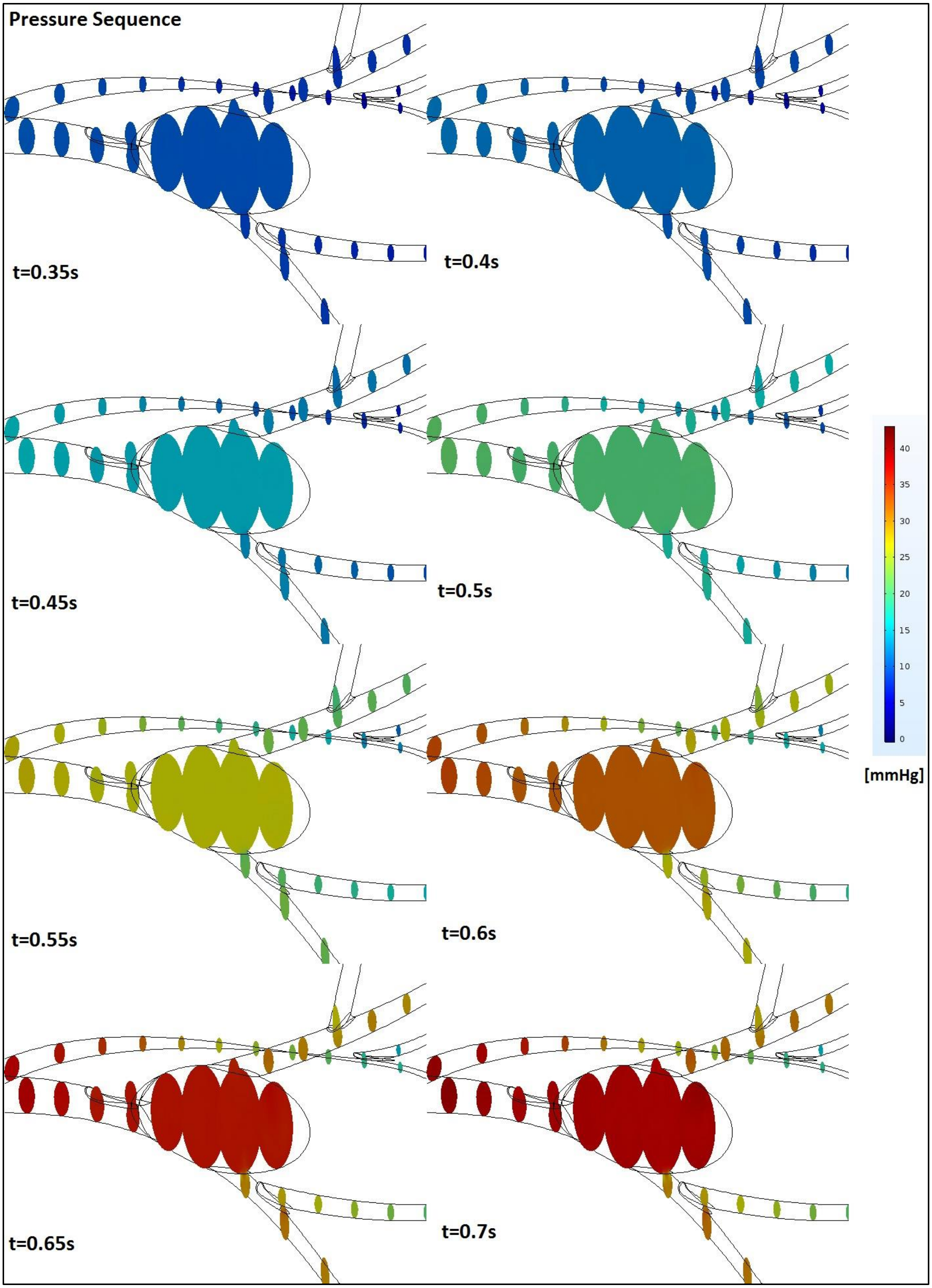


Fig. 72. X-RAA / Pressure sequence 1/2

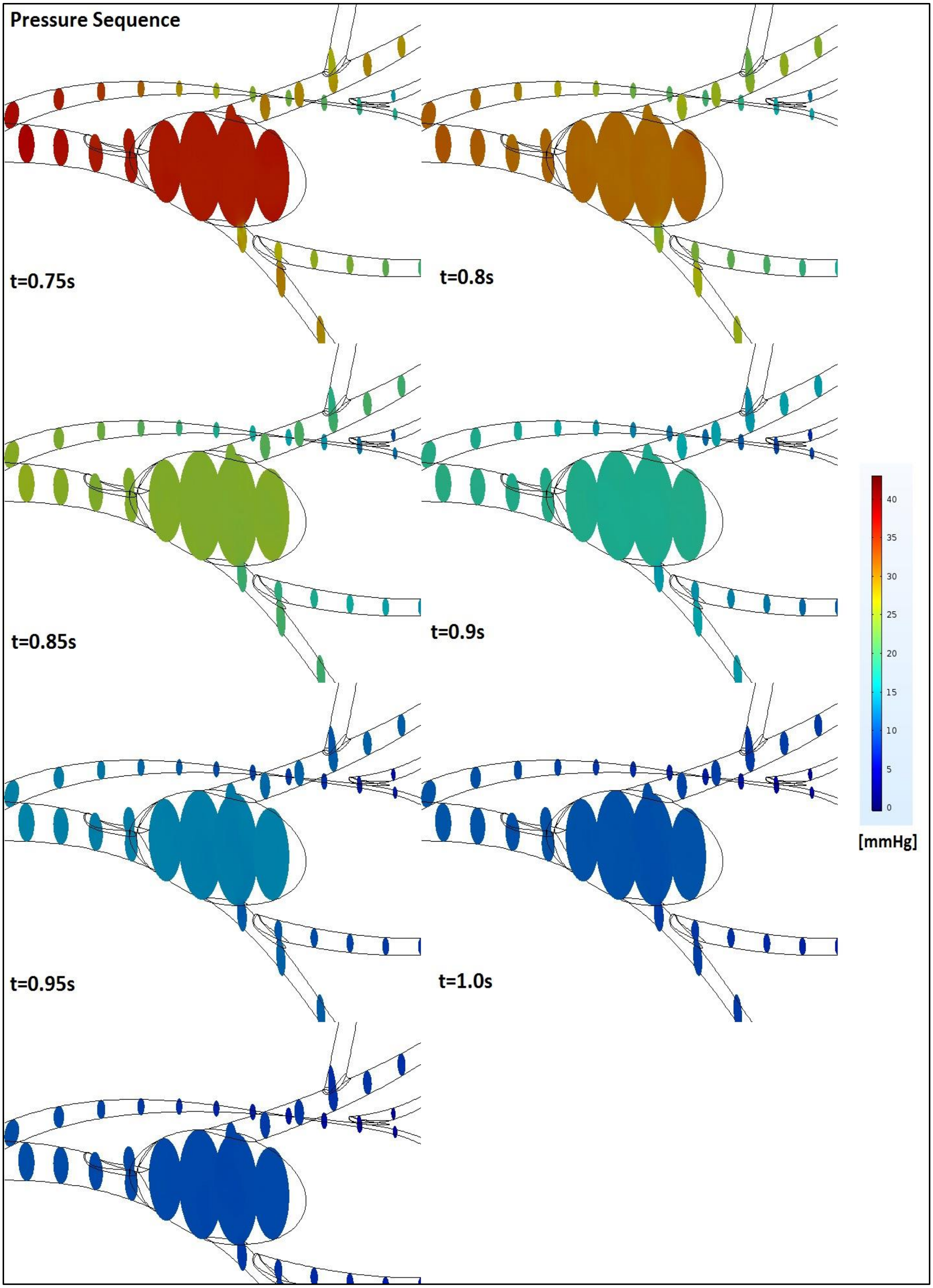


Fig. 73. X-RAA / Pressure sequence 2/2

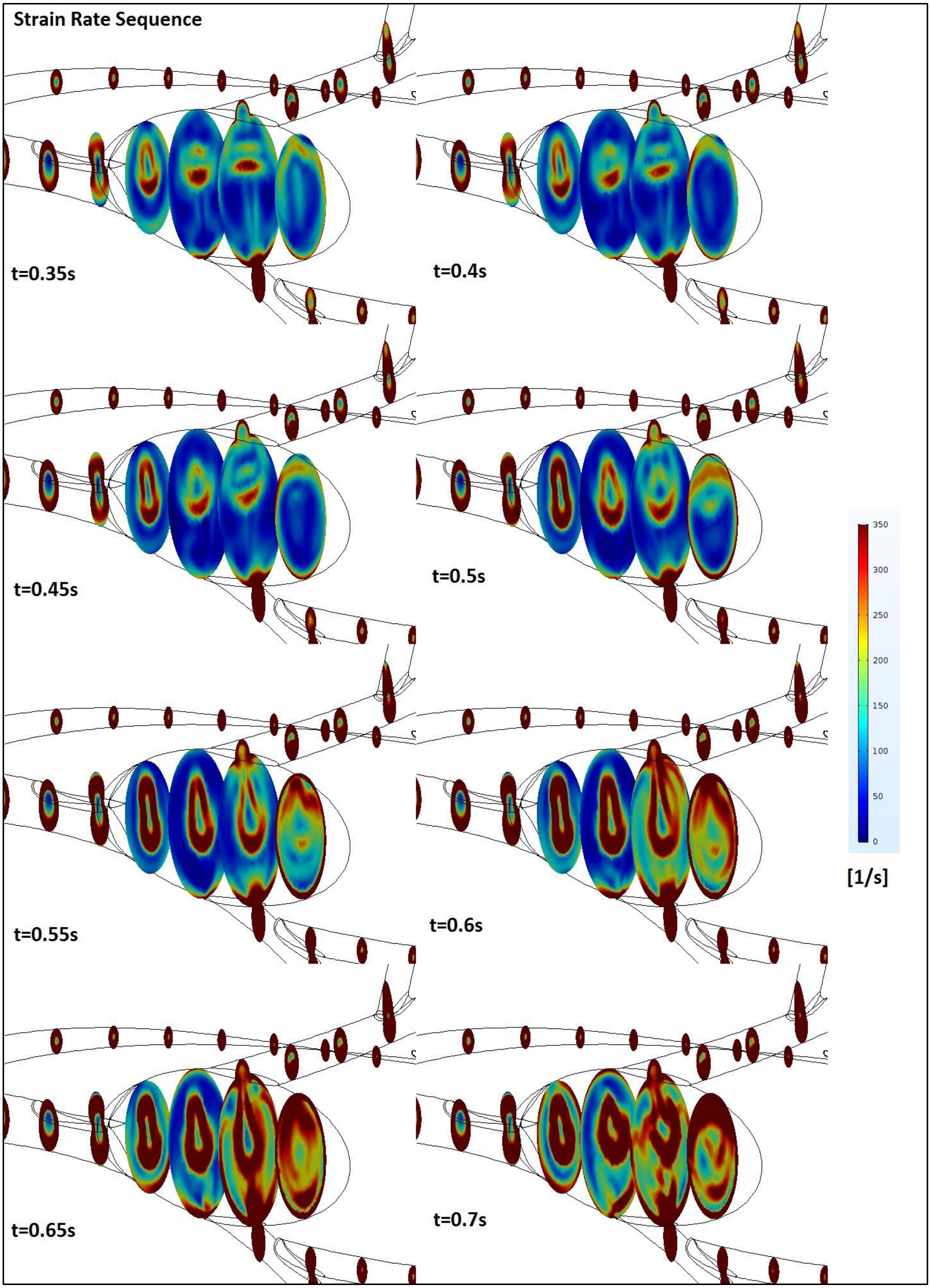


Fig. 74. X-RAA / Strain rate sequence 1/2

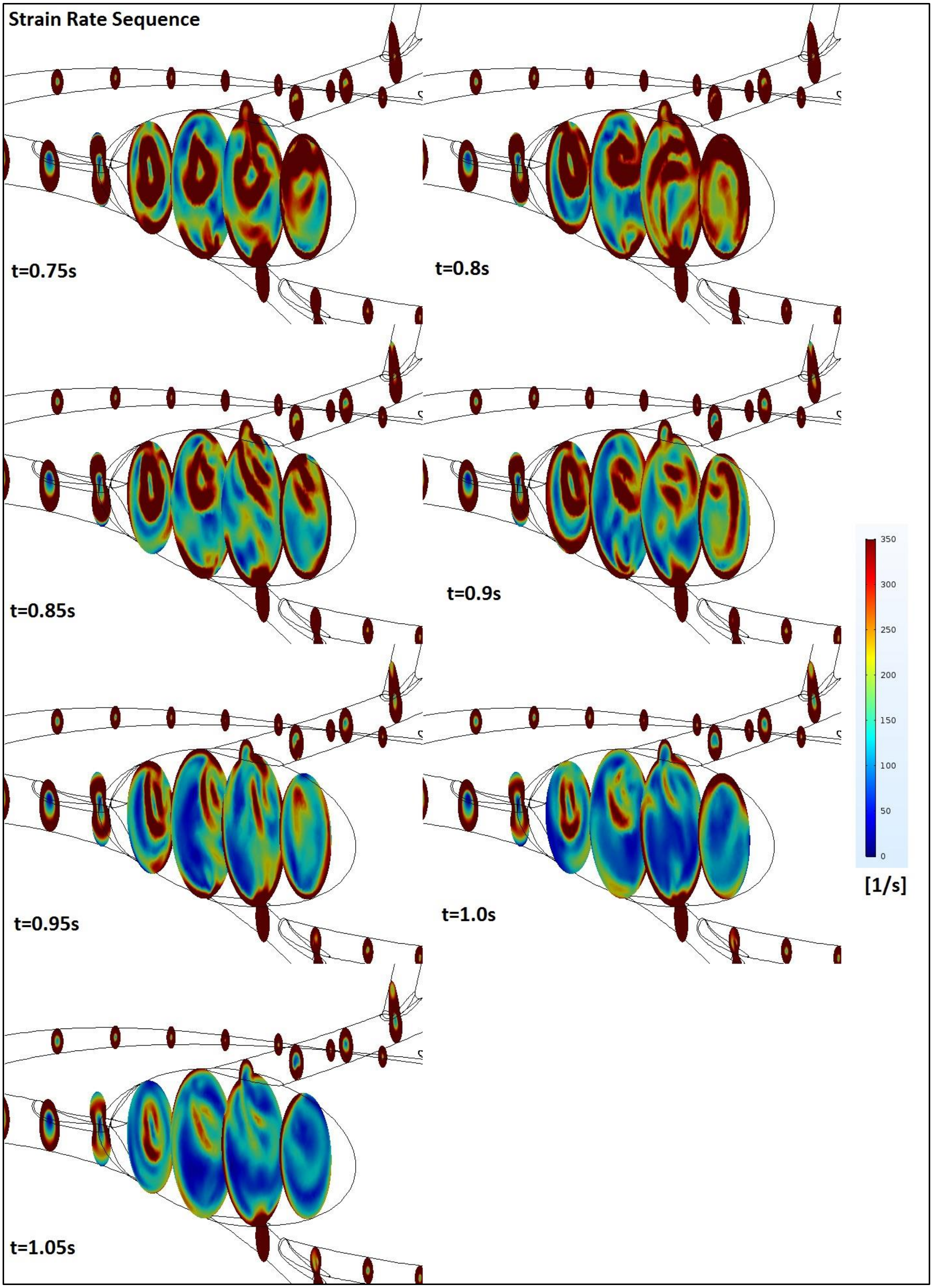


Fig. 75. X-RAA / Strain rate sequence 2/2

RAA - Simulation - Raw Data

Table A7.1: TRAN - Normal Resolution

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
	0.00	11.78	0.27	14.21	0.29	19.19	0.35	25.70	0.44	32.92	0.55	39.50	0.64	43.81	0.70	44.65	0.73	41.65	0.70	35.69	0.64	27.89	0.55	20.58	0.45	15.03	0.35	11.97	0.29	11.77	0.27
	0.50	11.62	0.34	13.99	0.37	18.88	0.44	25.29	0.54	32.39	0.65	38.87	0.75	43.12	0.82	43.96	0.85	41.03	0.82	35.19	0.76	27.52	0.66	20.32	0.54	14.85	0.44	11.83	0.37	11.61	0.34
	1.00	11.52	0.37	13.84	0.40	18.67	0.47	25.01	0.57	32.06	0.69	38.51	0.79	42.76	0.86	43.62	0.89	40.74	0.86	34.96	0.79	27.36	0.69	20.21	0.58	14.77	0.48	11.75	0.40	11.51	0.37
	1.50	11.43	0.38	13.71	0.40	18.46	0.48	24.74	0.58	31.74	0.70	38.16	0.80	42.40	0.87	43.29	0.90	40.45	0.88	34.74	0.81	27.22	0.71	20.12	0.59	14.71	0.49	11.69	0.41	11.43	0.38
	2.00	11.37	0.37	13.60	0.39	18.29	0.47	24.52	0.57	31.49	0.69	37.88	0.79	42.12	0.86	43.04	0.89	40.25	0.87	34.59	0.80	27.13	0.70	20.07	0.59	14.67	0.48	11.65	0.40	11.36	0.37
	2.50	11.31	0.36	13.50	0.39	18.14	0.46	24.33	0.56	31.27	0.68	37.65	0.78	41.90	0.85	42.85	0.88	40.10	0.86	34.49	0.79	27.07	0.69	20.04	0.58	14.66	0.47	11.63	0.40	11.30	0.36
	3.00	11.25	0.36	13.39	0.38	17.98	0.45	24.12	0.56	31.03	0.67	37.40	0.78	41.66	0.85	42.64	0.87	39.93	0.85	34.37	0.79	27.01	0.69	20.00	0.57	14.63	0.47	11.59	0.39	11.24	0.36
	3.50	11.18	0.36	13.28	0.38	17.81	0.45	23.90	0.56	30.77	0.67	37.12	0.78	41.38	0.85	42.38	0.87	39.72	0.85	34.21	0.79	26.91	0.69	19.95	0.57	14.60	0.47	11.56	0.39	11.18	0.36
	4.00	11.11	0.36	13.16	0.39	17.62	0.46	23.66	0.56	30.49	0.68	36.80	0.78	41.05	0.85	42.08	0.88	39.47	0.85	34.02	0.79	26.80	0.69	19.88	0.58	14.55	0.47	11.51	0.40	11.10	0.36
	4.50	11.02	0.38	13.02	0.40	17.41	0.47	23.37	0.58	30.13	0.70	36.40	0.80	40.63	0.87	41.68	0.90	39.12	0.88	33.75	0.81	26.61	0.71	19.77	0.59	14.47	0.49	11.44	0.41	11.01	0.38
	5.00	10.98	0.36	12.95	0.38	17.29	0.45	23.24	0.56	30.00	0.67	36.29	0.77	40.56	0.84	41.64	0.87	39.11	0.84	33.76	0.78	26.64	0.68	19.79	0.57	14.49	0.47	11.44	0.39	10.97	0.36
	5.50	10.93	0.35	12.85	0.37	17.14	0.44	23.05	0.54	29.77	0.66	36.05	0.75	40.31	0.82	41.42	0.85	38.94	0.83	33.64	0.76	26.58	0.67	19.76	0.56	14.48	0.46	11.42	0.38	10.92	0.35
	6.00	10.76	0.39	12.62	0.41	16.80	0.49	22.57	0.60	29.15	0.72	35.28	0.83	39.45	0.91	40.55	0.93	38.15	0.91	33.00	0.84	26.13	0.73	19.47	0.61	14.28	0.50	11.27	0.42	10.76	0.39
	6.51	10.54	0.43	12.33	0.46	16.37	0.54	21.98	0.66	28.37	0.79	34.33	0.91	38.39	0.99	39.48	1.02	37.17	1.00	32.20	0.92	25.53	0.81	19.06	0.68	14.01	0.55	11.06	0.46	10.53	0.43
	6.82	10.51	0.43	12.28	0.45	16.30	0.53	21.90	0.65	28.32	0.78	34.31	0.89	38.42	0.97	39.54	1.00	37.24	0.98	32.26	0.91	25.58	0.80	19.09	0.67	14.02	0.55	11.05	0.46	10.51	0.43
	7.03	10.52	0.39	12.27	0.41	16.30	0.48	21.91	0.60	28.36	0.72	34.40	0.83	38.55	0.90	39.69	0.93	37.39	0.91	32.38	0.84	25.68	0.74	19.15	0.62	14.05	0.51	11.07	0.43	10.51	0.39
	7.23	10.51	0.36	12.25	0.38	16.27	0.44	21.90	0.55	28.37	0.67	34.44	0.77	38.62	0.84	39.79	0.87	37.49	0.84	32.48	0.78	25.76	0.68	19.20	0.57	14.08	0.47	11.08	0.39	10.51	0.36
Line #1	7.45	10.39	0.36	12.09	0.38	16.05	0.46	21.58	0.56	27.94	0.68	33.91	0.79	38.01	0.86	39.16	0.88	36.91	0.86	32.00	0.79	25.39	0.69	18.95	0.58	13.91	0.47	10.95	0.39	10.38	0.36
	7.65	10.29	0.38	11.97	0.41	15.87	0.48	21.34	0.59	27.64	0.71	33.54	0.82	37.60	0.89	38.75	0.92	36.54	0.90	31.68	0.83	25.16	0.72	18.79	0.60	13.80	0.49	10.86	0.41	10.28	0.38
	7.85	10.18	0.40	11.83	0.42	15.68	0.50	21.09	0.61	27.32	0.74	33.16	0.85	37.19	0.92	38.33	0.95	36.15	0.92	31.36	0.85	24.92	0.75	18.61	0.63	13.67	0.51	10.76	0.43	10.18	0.40
	8.05	10.09	0.42	11.71	0.44	15.51	0.52	20.87	0.64	27.03	0.76	32.82	0.88	36.82	0.95	37.96	0.98	35.81	0.96	31.08	0.89	24.70	0.78	18.46	0.65	13.56	0.54	10.67	0.45	10.08	0.41
	8.26	9.98	0.41	11.58	0.44	15.33	0.52	20.62	0.64	26.72	0.77	32.46	0.88	36.42	0.96	37.56	0.99	35.45	0.96	30.77	0.89	24.46	0.78	18.29	0.65	13.44	0.54	10.57	0.45	9.98	0.41
	8.46	9.89	0.43	11.46	0.46	15.16	0.54	20.39	0.66	26.43	0.79	32.12	0.91	36.05	0.99	37.19	1.02	35.11	0.99	30.48	0.92	24.25	0.81	18.13	0.68	13.33	0.55	10.48	0.47	9.88	0.43
	8.66	9.78	0.44	11.31	0.47	14.96	0.55	20.12	0.68	26.09	0.81	31.71	0.93	35.60	1.01	36.74	1.04	34.69	1.01	30.13	0.94	23.98	0.82	17.94	0.69	13.19	0.57	10.37	0.48	9.77	0.44
	8.87	9.65	0.45	11.16	0.47	14.75	0.56	19.84	0.69	25.72	0.83	31.27	0.95	35.11	1.03	36.24	1.06	34.23	1.03	29.74	0.96	23.69	0.84	17.73	0.70	13.04	0.58	10.25	0.48	9.65	0.45
	9.07	9.53	0.46	11.01	0.48	14.53	0.57	19.55	0.70	25.36	0.84	30.83	0.97	34.63	1.05	35.75	1.08	33.78	1.05	29.37	0.98	23.40	0.86	17.53	0.72	12.89	0.59	10.13	0.49	9.52	0.46
	9.60	9.15	0.50	10.54	0.53	13.89	0.63	18.68	0.76	24.24	0.91	29.49	1.04	33.14	1.13	34.24	1.17	32.38	1.14	28.17	1.05	22.49	0.93	16.86	0.78	12.42	0.64	9.75	0.54	9.15	0.50
	9.80	9.02	0.50	10.37	0.53	13.66	0.63	18.38	0.77	23.86	0.92	29.04	1.05	32.66	1.14	33.76	1.18	31.94	1.15	27.80	1.06	22.19	0.93	16.65	0.78	12.26	0.64	9.63	0.54	9.01	0.50
	10.49	8.57	0.38	9.83	0.41	12.93	0.48	17.41	0.58	22.63	0.68	27.58	0.77	31.04	0.83	32.11	0.86	30.39	0.84	26.46	0.78	21.12	0.69	15.85	0.59	11.67	0.49	9.16	0.41	8.56	0.38
	11.22	8.02	0.39	9.18	0.42	12.07	0.50	16.27	0.61	21.20	0.73	25.88	0.83	29.18	0.90	30.23	0.93	28.63	0.91	24.94	0.84	19.92	0.74	14.94	0.62	11.00	0.51	8.61	0.43	8.02	0.39
	12.24	6.99	0.45	7.96	0.48	10.45	0.57	14.12	0.70	18.45	0.84	22.59	0.96	25.52	1.04	26.48	1.08	25.12	1.05	21.90	0.97	17.51	0.85	13.14	0.71	9.67	0.58	7.55	0.48	6.98	0.45
	12.75	6.26	0.48	7.11	0.51	9.32	0.61	12.61	0.76	16.51	0.92	20.24	1.06	22.89	1.15	23.78	1.19	22.57	1.15	19.69	1.06	15.76	0.93	11.83	0.77	8.70	0.63	6.78	0.52	6.26	0.48
	13.15	5.62	0.54	6.37	0.58	8.35	0.69	11.32	0.84	14.85	1.01	18.26	1.15	20.69	1.25	21.52	1.29	20.43	1.26	17.82	1.16	14.26	1.02	10.70	0.86	7.86	0.70	6.11	0.59	5.62	0.54
	13.61	5.28	0.46	5.97	0.49	7.90	0.57	10.87	0.69	14.47	0.80	17.99	0.91	20.54	0.97	21.44	1.00	20.36	0.98	17.69	0.91	14.06	0.81	10.43	0.69	7.55	0.58	5.80	0.50	5.27	0.46
	14.19	3.35	0.63	3.80	0.67	5.12	0.78	7.20	0.93	9.79	1.10	12.36	1.23	14.25	1.32	14.94	1.35	14.16	1.32	12.23	1.23	9.60	1.10	7.00	0.94	4.96	0.78	3.73	0.67	3.35	0.63
	14.58	1.76	0.36	2.03	0.39	2.91	0.48	4.41	0.60	6.36	0.73	8.38	0.84	9.89	0.92	10.47	0.95	9.88	0.92	8.38	0.85	6.37	0.73	4.40	0.60	2.91	0.48	2.04	0.39	1.76	0.36
	0.00	11.78	0.27	14.21	0.29	19.19	0.35	25.70	0.44	32.92	0.55	39.50	0.64	43.81	0.70	44.65	0.73	41.65	0.70	35.69	0.64	27.89	0.55	20.58	0.45	15.03	0.35	11.97	0.29	11.77	0.27
	0.50	11.62	0.34	13.99	0.37	18.88	0.44	25.29	0.54	32.39	0.65	38.87	0.75	43.12	0.82	43.96	0.85	41.03	0.82	35.19	0.76	27.52	0.66	20.32	0.54	14.85	0.44	11.83	0.37	11.61	0.34
	1.00	11.52	0.37	13.84	0.40	18.67	0.47	25.01	0.57	32.06	0.69	38.51	0.79	42.76	0.86	43.62	0.89	40.74	0.86	34.96	0.79	27.36	0.69	20.21	0.58	14.77	0.48	11.75	0.40	11.51	0.37
	1.50	11.43	0.38	13.71	0.40	18.46	0.48	24.74	0.58	31.74	0.70	38.16	0.80	42.40	0.87	43.29	0.90	40.45	0.88	34.74	0.81	27.22	0.71	20.12	0.59	14.71	0.49	11.69	0.41	11.43	0.38
	2.00	11.37	0.37	13.60	0.39	18.29	0.47	24.52	0.57	31.49	0.69	37.88	0.79	42.12	0.86	43.04	0.89	40.25	0.87	34.59	0.80	27.13	0.70	20.07	0.59	14.67	0.48	11.65	0.40	11.36	0.37
	2.50	11.31	0.36	13.50	0.39	18.14	0.46	24.33	0.56	31.27	0.68	37.65	0.78	41.90	0.85	42.85	0.88	40.10	0.86	34.49	0.79	27.07	0.69	20.04	0.58	14.66	0.47	11.63	0.40	11.30	0.36
	3.00	11.25	0.36	13.39	0.38	17.98	0.45	24.12	0.56	31.03	0.67	37.40	0.78	41.66	0.85	42.64	0.87	39.93	0.85	34.37	0.79	27.01	0.69	20.00	0.57	14.63	0.47	11.59	0.39	11.24	0.36
	3.50	11.18	0.36	13.28	0.38	17.81	0.45	23.90	0.56	30.77	0.67	37.12	0.78	41.38	0.85	42.38	0.87	39.72	0.85	34.21	0.79	26.91	0.69	19.95	0.57	14.60	0.47	11.56	0.39	11.18	0.36
	4.00	11.11	0.36	13.16	0.39	17.62	0.46	23.66	0.56	30.49	0.68	36.80	0.78	41.05	0.85	42.08	0.88	39.47	0.85	34.02	0.79	26.80	0.69	19.88	0.58	14.55	0.47	11.51	0.40	11.10	0.36
	4.50	11.02	0.38	13.02	0.40	17.41	0.47	23.37	0.58	30.13	0.70	36.40	0.80	40.63	0.87	41.68	0.90	39.12	0.88	33.75	0.81	26.61	0.71	19.77	0.59	14.47	0.49	11.44	0.41	11.01	0.38
	5.00	10.98	0.36	12.95	0.38	17.29	0.45	23.24	0.56	30.00	0.67	36.29	0.77	40.56	0.84	41.64	0.87	39.11	0.84	33.76	0.78	26.64	0.68	19.79	0.57	14.49	0.47	11.44	0.39	10.97	0.36
	5.50	10.93	0.35	12.85	0.37	17.14	0.44	23.05	0.54	29.77	0.66	36.05	0.75	40.31	0.82	41.42	0.85	38.94	0.83	33.64	0.76	26.58	0.67	19.76	0.56	14.48	0.46	11.42	0.38	10.92	0.35
	6.00	10.76	0.39	12.62	0.41	16.80	0.49	22.57	0.60	29.15	0.72	35.28	0.83	39.45	0.91	40.55	0.93	38.15	0.91	33.00	0.84	26.13	0.73	19.47	0.61	14.28	0.50	11.27	0.42	10.76	0.39
	6.51	10.54	0.43	12.33	0.46	16.37	0.54	21.98	0.66	28.37	0.79	34.33	0.91	38.39	0.99	39.48	1.02	37.17	1.00	32.20	0.92	25.53	0.81	19.06	0.68	14.01	0.55	11.06	0.46	10.53	0.43
	6.82	10.51	0.43	12.28	0.45	16.30	0.53	21.90	0.65	28.32	0.78	34.31	0.89	38.42	0.97	39.54	1.00	37.24	0.98	32.26	0.91	25.58	0.80	19.09	0.67	14.02	0.55	11.05	0.46	10.51	0.43
	7.03	10.52	0.39	12.27	0.41	16.30	0.48	21.91	0.60	28.36	0.72	34.40	0.83	38.55	0.90	39.69	0.93	37.39	0.91	32.38	0.84	25.68	0.74	19.15	0.62	14.05	0.51	11.07	0.43	10.51	0.39
	7.23	10.51	0.36	12.25	0.38	16.27	0.44	21.90	0.55	28.37	0.67	34.44	0.77	38.62	0.84	39.79	0.87	37.49	0.84	32.48	0.78	25.76	0.68	19.20	0.57	14.08	0.47	11.08	0.39	10.51	0.36
Line #2	7.45	10.39	0.36	12.09	0.38	16.05	0.46	21.58	0.56	27.94	0.68	33.91	0.79	38.01	0.86	39.16	0.88	36.91	0.86	32.00	0.79	25.39	0.69	18.95	0.58	13.91	0.47	10.95	0.39	10.38	0.36
	7.65	10.29	0.38	11.97	0.41	15.87	0.48	21.34	0.59	27.64	0.71	33.54	0.82	37.60	0.89	38.75	0.92	36.54	0.90	31.68	0.83	25.16	0.72	18.79	0.60	13.80	0.49	10.86	0.41	10.28	0.38
	7.85	10.18	0.40	11.83	0.42	15.68	0.50	21.09	0.61	27.32	0.74	33.16	0.85	37.19	0.92	38.33	0.95	36.15	0.92	31.36	0.85	24.92	0.75	18.61	0.63	13.67	0.51	10.76	0.43	10.18	0.40
	8.05	10.09	0.42	11.71	0.44	15.51	0.52	20.87	0.64	27.03	0.76	32.82	0.88	36.82	0.95	37.96	0.98	35.81	0.96	31.08	0.89	24.70	0.78	18.46	0.65	13.56	0.54	10.67	0.45	10.08	0.41
	8.26	9.98	0.41	11.58	0.44	15.33	0.52	20.62	0.64	26.72	0.77	32.46	0.88	36.42	0.96	37.56	0.99	35.45	0.96	30.77	0.89	24.46	0.78	18.29	0.65	13.44	0.54	10.57	0.45	9.98	0.41
	8.46	9.89	0.43	11.46	0.46	15.16	0.54	20.39	0.66	26.43	0.79	32.12	0.91	36.05	0.99	37.19	1.02	35.11	0.99	30.48	0.92	24.25	0.81	18.13	0.68	13.33	0.55	10.48	0.47	9.88	0.43
	8.66	9.78	0.44	11.31	0.47	14.96	0.55	20.12	0.68	26.09	0.81	31.71	0.93	35.60	1.01	36.74	1.04	34.69	1.01	30.13	0.94	23.98	0.82	17.94	0.69	13.19	0.57	10.37	0.48	9.77	0.44
	8.87	9.65	0.45	11.16	0.47	14.75	0.56	19.84	0.69	25.72	0.83	31.27	0.95	35.11	1.03	36.24	1.06	34.23	1.03	29.74	0.96	23.69	0.84	17.73	0.70	13.04	0.58	10.25	0.48	9.65	0.45
	9.07	9.53	0.46	11.01	0.48	14.53	0.57	19.55	0.70	25.36	0.84	30.83	0.97	34.63	1.05	35.75	1.08	33.78	1.05	29.37	0.98	23.40	0.86	17.53	0.72	12.89	0.59	10.13	0.49	9.52	0.46
	9.60	9.15	0.50	10.54	0.53	13.89	0.63	18.68	0.76	24.24	0.91	29.49	1.04	33.14	1.13	34.24	1.17	32.38	1.14	28.17	1.05	22.49	0.93	16.86	0.78	12.42	0.64	9.75	0.54	9.15	0.50
	9.80	9.02	0.50	10.37	0.53	13.66	0.63	18.38	0.77	23.86	0.92	29.04	1.05	32.66	1.14	33.76	1.18	31.94	1.15	27.80	1.06	22.19	0.93	16.65	0.78	12.26	0.64	9.63	0.54	9.01	0.50
	10.12	9.15	0.36	10.51	0.38	13.86	0.46	18.73	0.57	24.45	0.69	29.90	0.79	33.74	0.86	34.95	0.89	33.07	0.87	28.75	0.80	22.90	0.70	17.12	0.59	12.55	0.48	9.81	0.39	9.15	0.36
	10.65	8.98	0.34	10.28	0.36	13.56	0.43	18.35	0.53	23.99	0.64	29.38	0.74	33.19	0.81	34.41	0.83	32.59	0.81	28.36	0.75	22.61	0.65	16.91	0.54	12.39	0.44	9.66	0.37	8.98	0.34
	11.19	8.57	0.41	9.78	0.43	12.88	0.51	17.42	0.63	22.78	0.76	27.90	0.87	31.52	0.95	32.70	0.98	31.00	0.95	27.00	0.88	21.57	0.77	16.15	0.64	11.85	0.52	9.24	0.44	8.56	0.40
	11.76	7.93	0.47	9.02	0.50	11.83	0.59	15.99	0.73	20.89	0.88	25.57	1.02	28.88	1.11	29.98	1.14	28.45	1.11	24.82	1.03	19.87	0.90	14.93	0.75	10.98	0.61	8.57	0.51	7.92	0.47
	12.35	6.93	0.57	7.84	0.60	10.24	0.72	13.80	0.88	17.99	1.06	21.99	1.22	24.82	1.33	25.77	1.37	24.48	1.34	21.41	1.23	17.21	1.08	12.98	0.90	9.59	0.73	7.50	0.61	6.92	0.57
	12.96	6.26	0.48	7.06	0.51	9.26	0.61	12.58	0.75	16.56	0.91	20.42	1.04	23.20	1.13	24.17	1.17	22.98	1.14	20.05	1.05	16.06	0.92	12.04	0.77	8.82	0.63	6.84	0.52	6.25	0.48
	13.66	3.29	0.79	3.69	0.84	4.79	0.99	6.43	1.22	8.39	1.45	10.27	1.65	11.62	1.79	12.09	1.84	11.51	1.79	10.09	1.66	8.14	1.47	6.17	1.23	4.57	1.01	3.58	0.85	3.28	0.79
	14.16	0.16	0.87	0.17	0.93	0.23	1.10	0.33	1.35	0.45	1.61	0.56	1.85	0.65	2.01	0.68	2.08	0.65	2.02	0.57	1.87	0.45	1.63	0.33	1.36	0.24	1.12	0.18	0.94	0.16	0.87
	0.00	11.78	0.27	14.21	0.29	19.19	0.35	25.70	0.44	32.92	0.55	39.50	0.64	43.81	0.70	44.65	0.73	41.65	0.70	35.69	0.64	27.89	0.55	20.58	0.45	15.03	0.35	11.97	0.29	11.77	0.27
	0.50	11.62	0.34	13.99	0.37	18.88	0.44	25.29	0.54	32.39	0.65	38.87	0.75	43.12	0.82	43.96	0.85	41.03	0.82	35.19	0.76	27.52	0.66	20.32	0.54	14.85	0.44	11.83	0.37	11.61	0.34
	1.00	11.52	0.37	13.84	0.40	18.67	0.47	25.01	0.57	32.06	0.69	38.51	0.79	42.76	0.86	43.62	0.89	40.74	0.86	34.96	0.79	27.36	0.69	20.21	0.58	14.77	0.48	11.75	0.40	11.51	0.37
	1.50	11.43	0.38	13.71	0.40	18.46	0.48	24.74	0.58	31.74	0.70	38.16	0.80	42.40	0.87	43.29	0.90	40.45	0.88	34.74	0.81	27.22	0.71	20.12	0.59	14.71	0.49	11.69	0.41	11.43	0.38
	2.00	11.37	0.37	13.60	0.39	18.29	0.47	24.52	0.57	31.49	0.69	37.88	0.79	42.12	0.86	43.04	0.89	40.25	0.87	34.59	0.80	27.13	0.70	20.07	0.59	14.67	0.48	11.65	0.40	11.36	0.37
	2.50	11.31	0.36	13.50	0.39	18.14	0.46	24.33	0.56	31.27	0.68	37.65	0.78	41.90	0.85	42.85	0.88	40.10	0.86	34.49	0.79	27.07	0.69	20.04	0.58	14.66	0.47	11.63	0.40	11.30	0.36
	3.00	11.25	0.36	13.39	0.38	17.98	0.45	24.12	0.56	31.03	0.67	37.40	0.78	41.66	0.85	42.64	0.87	39.93	0.85	34.37	0.79	27.01	0.69	20.00	0.57	14.63	0.47	11.59	0.39	11.24	0.36

	3.50	11.18	0.36	13.28	0.38	17.81	0.45	23.90	0.56	30.77	0.67	37.12	0.78	41.38	0.85	42.38	0.87	39.72	0.85	34.21	0.79	26.91	0.69	19.95	0.57	14.60	0.47	11.56	0.39	11.18	0.36
	4.00	11.11	0.36	13.16	0.39	17.62	0.46	23.66	0.56	30.49	0.68	36.80	0.78	41.05	0.85	42.08	0.88	39.47	0.85	34.02	0.79	26.80	0.69	19.88	0.58	14.55	0.47	11.51	0.40	11.10	0.36
	4.50	11.02	0.38	13.02	0.40	17.41	0.47	23.37	0.58	30.13	0.70	36.40	0.80	40.63	0.87	41.68	0.90	39.12	0.88	33.75	0.81	26.61	0.71	19.77	0.59	14.47	0.49	11.44	0.41	11.01	0.38
	5.00	10.98	0.36	12.95	0.38	17.29	0.45	23.24	0.56	30.00	0.67	36.29	0.77	40.56	0.84	41.64	0.87	39.11	0.84	33.76	0.78	26.64	0.68	19.79	0.57	14.49	0.47	11.44	0.39	10.97	0.36
	5.50	10.93	0.35	12.85	0.37	17.14	0.44	23.05	0.54	29.77	0.66	36.05	0.75	40.31	0.82	41.42	0.85	38.94	0.83	33.64	0.76	26.58	0.67	19.76	0.56	14.48	0.46	11.42	0.38	10.92	0.35
	6.00	10.76	0.39	12.62	0.41	16.80	0.49	22.57	0.60	29.15	0.72	35.28	0.83	39.45	0.91	40.55	0.93	38.15	0.91	33.00	0.84	26.13	0.73	19.47	0.61	14.28	0.50	11.27	0.42	10.76	0.39
	6.51	10.54	0.43	12.33	0.46	16.37	0.54	21.98	0.66	28.37	0.79	34.33	0.91	38.39	0.99	39.48	1.02	37.17	1.00	32.20	0.92	25.53	0.81	19.06	0.68	14.01	0.55	11.06	0.46	10.53	0.43
	6.82	10.51	0.43	12.28	0.45	16.30	0.53	21.90	0.65	28.32	0.78	34.31	0.89	38.42	0.97	39.54	1.00	37.24	0.98	32.26	0.91	25.58	0.80	19.09	0.67	14.02	0.55	11.05	0.46	10.51	0.43
	7.02	10.55	0.40	12.30	0.42	16.34	0.50	21.99	0.61	28.46	0.73	34.54	0.84	38.71	0.91	39.86	0.94	37.56	0.92	32.53	0.85	25.78	0.75	19.22	0.63	14.10	0.52	11.10	0.44	10.54	0.40
Line #3	7.24	10.58	0.35	12.33	0.36	16.37	0.43	22.05	0.53	28.58	0.64	34.71	0.74	38.94	0.81	40.12	0.83	37.81	0.81	32.75	0.75	25.96	0.66	19.34	0.55	14.18	0.45	11.15	0.38	10.57	0.35
	7.47	10.49	0.33	12.21	0.35	16.21	0.42	21.82	0.52	28.26	0.63	34.32	0.72	38.49	0.79	39.66	0.82	37.39	0.79	32.40	0.73	25.70	0.64	19.17	0.53	14.07	0.43	11.07	0.36	10.48	0.33
	7.70	10.37	0.34	12.06	0.36	15.99	0.43	21.51	0.54	27.86	0.65	33.81	0.74	37.91	0.81	39.07	0.84	36.85	0.81	31.96	0.75	25.38	0.65	18.96	0.54	13.92	0.44	10.96	0.37	10.37	0.34
	7.94	10.24	0.37	11.89	0.39	15.75	0.47	21.17	0.58	27.40	0.70	33.24	0.80	37.26	0.87	38.40	0.90	36.23	0.88	31.44	0.81	25.00	0.70	18.70	0.58	13.75	0.48	10.82	0.40	10.23	0.37
	8.17	10.08	0.40	11.69	0.43	15.46	0.51	20.76	0.63	26.86	0.76	32.57	0.88	36.50	0.96	37.62	0.98	35.51	0.96	30.84	0.88	24.55	0.77	18.38	0.64	13.53	0.52	10.66	0.44	10.07	0.40
	8.40	9.90	0.44	11.47	0.47	15.15	0.56	20.33	0.69	26.28	0.83	31.85	0.96	35.69	1.04	36.79	1.07	34.73	1.05	30.19	0.96	24.06	0.84	18.04	0.70	13.29	0.57	10.47	0.48	9.89	0.44
	8.68	9.64	0.47	11.16	0.51	14.71	0.60	19.72	0.75	25.47	0.90	30.86	1.03	34.57	1.12	35.64	1.15	33.67	1.12	29.29	1.04	23.37	0.91	17.55	0.76	12.95	0.61	10.21	0.51	9.64	0.47
	8.96	9.49	0.47	10.96	0.50	14.44	0.60	19.37	0.73	25.05	0.88	30.38	1.01	34.07	1.10	35.15	1.13	33.21	1.10	28.89	1.02	23.05	0.89	17.31	0.74	12.77	0.60	10.07	0.51	9.48	0.47
	9.25	9.61	0.30	11.08	0.32	14.63	0.39	19.68	0.49	25.53	0.60	31.05	0.70	34.88	0.76	36.03	0.78	34.05	0.76	29.60	0.70	23.59	0.60	17.68	0.50	13.01	0.40	10.23	0.33	9.60	0.30
	9.57	9.54	0.27	10.98	0.29	14.50	0.35	19.53	0.44	25.37	0.52	30.89	0.60	34.74	0.66	35.90	0.68	33.94	0.66	29.51	0.60	23.53	0.52	17.62	0.43	12.96	0.35	10.17	0.29	9.53	0.27
	10.39	9.09	0.34	10.43	0.37	13.74	0.44	18.52	0.55	24.08	0.66	29.35	0.76	33.04	0.83	34.19	0.86	32.36	0.84	28.17	0.77	22.49	0.67	16.86	0.56	12.41	0.45	9.73	0.37	9.08	0.34
	11.25	8.30	0.43	9.49	0.46	12.45	0.55	16.74	0.68	21.74	0.82	26.47	0.95	29.79	1.03	30.84	1.07	29.23	1.04	25.51	0.95	20.44	0.83	15.39	0.69	11.36	0.56	8.91	0.47	8.30	0.43
	11.92	7.08	0.57	8.05	0.61	10.49	0.73	14.04	0.90	18.15	1.08	22.02	1.24	24.74	1.34	25.61	1.38	24.31	1.35	21.29	1.24	17.15	1.09	13.00	0.91	9.66	0.74	7.61	0.62	7.08	0.57
	12.50	6.39	0.45	7.24	0.48	9.44	0.58	12.69	0.72	16.49	0.87	20.11	1.00	22.67	1.09	23.52	1.12	22.34	1.09	19.56	1.00	15.74	0.87	11.90	0.72	8.81	0.58	6.91	0.48	6.38	0.45
	13.04	3.51	0.62	3.94	0.68	5.01	0.83	6.52	1.05	8.20	1.29	9.72	1.50	10.75	1.64	11.07	1.70	10.56	1.64	9.38	1.50	7.74	1.29	6.04	1.05	4.63	0.83	3.74	0.68	3.50	0.62
	13.56	0.36	0.73	0.40	0.78	0.46	0.94	0.51	1.17	0.50	1.42	0.44	1.64	0.36	1.79	0.31	1.85	0.32	1.79	0.37	1.64	0.42	1.43	0.43	1.18	0.40	0.95	0.36	0.79	0.36	0.73
	13.66	0.10	0.52	0.11	0.57	0.14	0.70	0.19	0.88	0.24	1.08	0.29	1.27	0.32	1.40	0.33	1.45	0.31	1.40	0.28	1.27	0.23	1.08	0.18	0.88	0.13	0.70	0.11	0.57	0.10	0.52
	0.00	11.78	0.27	14.21	0.29	19.19	0.35	25.70	0.44	32.92	0.55	39.50	0.64	43.81	0.70	44.65	0.73	41.65	0.70	35.69	0.64	27.89	0.55	20.58	0.45	15.03	0.35	11.97	0.29	11.77	0.27
	0.50	11.62	0.34	13.99	0.37	18.88	0.44	25.29	0.54	32.39	0.65	38.87	0.75	43.12	0.82	43.96	0.85	41.03	0.82	35.19	0.76	27.52	0.66	20.32	0.54	14.85	0.44	11.83	0.37	11.61	0.34
	1.00	11.52	0.37	13.84	0.40	18.67	0.47	25.01	0.57	32.06	0.69	38.51	0.79	42.76	0.86	43.62	0.89	40.74	0.86	34.96	0.79	27.36	0.69	20.21	0.58	14.77	0.48	11.75	0.40	11.51	0.37
	1.50	11.43	0.38	13.71	0.40	18.46	0.48	24.74	0.58	31.74	0.70	38.16	0.80	42.40	0.87	43.29	0.90	40.45	0.88	34.74	0.81	27.22	0.71	20.12	0.59	14.71	0.49	11.69	0.41	11.43	0.38
	2.00	11.37	0.37	13.60	0.39	18.29	0.47	24.52	0.57	31.49	0.69	37.88	0.79	42.12	0.86	43.04	0.89	40.25	0.87	34.59	0.80	27.13	0.70	20.07	0.59	14.67	0.48	11.65	0.40	11.36	0.37
	2.50	11.31	0.36	13.50	0.39	18.14	0.46	24.33	0.56	31.27	0.68	37.65	0.78	41.90	0.85	42.85	0.88	40.10	0.86	34.49	0.79	27.07	0.69	20.04	0.58	14.66	0.47	11.63	0.40	11.30	0.36
	3.00	11.25	0.36	13.39	0.38	17.98	0.45	24.12	0.56	31.03	0.67	37.40	0.78	41.66	0.85	42.64	0.87	39.93	0.85	34.37	0.79	27.01	0.69	20.00	0.57	14.63	0.47	11.59	0.39	11.24	0.36
	3.50	11.18	0.36	13.28	0.38	17.81	0.45	23.90	0.56	30.77	0.67	37.12	0.78	41.38	0.85	42.38	0.87	39.72	0.85	34.21	0.79	26.91	0.69	19.95	0.57	14.60	0.47	11.56	0.39	11.18	0.36
	4.00	11.11	0.36	13.16	0.39	17.62	0.46	23.66	0.56	30.49	0.68	36.80	0.78	41.05	0.85	42.08	0.88	39.47	0.85	34.02	0.79	26.80	0.69	19.88	0.58	14.55	0.47	11.51	0.40	11.10	0.36
	4.50	11.02	0.38	13.02	0.40	17.41	0.47	23.37	0.58	30.13	0.70	36.40	0.80	40.63	0.87	41.68	0.90	39.12	0.88	33.75	0.81	26.61	0.71	19.77	0.59	14.47	0.49	11.44	0.41	11.01	0.38
	5.00	10.98	0.36	12.95	0.38	17.29	0.45	23.24	0.56	30.00	0.67	36.29	0.77	40.56	0.84	41.64	0.87	39.11	0.84	33.76	0.78	26.64	0.68	19.79	0.57	14.49	0.47	11.44	0.39	10.97	0.36
	5.50	10.93	0.35	12.85	0.37	17.14	0.44	23.05	0.54	29.77	0.66	36.05	0.75	40.31	0.82	41.42	0.85	38.94	0.83	33.64	0.76	26.58	0.67	19.76	0.56	14.48	0.46	11.42	0.38	10.92	0.35
	6.00	10.76	0.39	12.62	0.41	16.80	0.49	22.57	0.60	29.15	0.72	35.28	0.83	39.45	0.91	40.55	0.93	38.15	0.91	33.00	0.84	26.13	0.73	19.47	0.61	14.28	0.50	11.27	0.42	10.76	0.39
	6.51	10.54	0.43	12.33	0.46	16.37	0.54	21.98	0.66	28.37	0.79	34.33	0.91	38.39	0.99	39.48	1.02	37.17	1.00	32.20	0.92	25.53	0.81	19.06	0.68	14.01	0.55	11.06	0.46	10.53	0.43
	6.82	10.51	0.43	12.28	0.45	16.30	0.53	21.90	0.65	28.32	0.78	34.31	0.89	38.42	0.97	39.54	1.00	37.24	0.98	32.26	0.91	25.58	0.80	19.09	0.67	14.02	0.55	11.05	0.46	10.51	0.43
	7.02	10.55	0.40	12.30	0.42	16.34	0.50	21.99	0.61	28.46	0.73	34.54	0.84	38.71	0.91	39.86	0.94	37.56	0.92	32.53	0.85	25.78	0.75	19.22	0.63	14.10	0.52	11.10	0.44	10.54	0.40
	7.24	10.58	0.35	12.33	0.36	16.37	0.43	22.05	0.53	28.58	0.64	34.71	0.74	38.94	0.81	40.12	0.83	37.81	0.81	32.75	0.75	25.96	0.66	19.34	0.55	14.18	0.45	11.15	0.38	10.57	0.35
Line #4	7.47	10.49	0.33	12.21	0.35	16.21	0.42	21.82	0.52	28.26	0.63	34.32	0.72	38.49	0.79	39.66	0.82	37.39	0.79	32.40	0.73	25.70	0.64	19.17	0.53	14.07	0.43	11.07	0.36	10.48	0.33
	7.70	10.37	0.34	12.06	0.36	15.99	0.43	21.51	0.54	27.86	0.65	33.81	0.74	37.91	0.81	39.07	0.84	36.85	0.81	31.96	0.75	25.38	0.65	18.96	0.54	13.92	0.44	10.96	0.37	10.37	0.34
	7.94	10.24	0.37	11.89	0.39	15.75	0.47	21.17	0.58	27.40	0.70	33.24	0.80	37.26	0.87	38.40	0.90	36.23	0.88	31.44	0.81	25.00	0.70	18.70	0.58	13.75	0.48	10.82	0.40	10.23	0.37
	8.17	10.08	0.40	11.69	0.43	15.46	0.51	20.76	0.63	26.86	0.76	32.57	0.88	36.50	0.96	37.62	0.98	35.51	0.96	30.84	0.88	24.55	0.77	18.38	0.64	13.53	0.52	10.66	0.44	10.07	0.40
	8.40	9.90	0.44	11.47	0.47	15.15	0.56	20.33	0.69	26.28	0.83	31.85	0.96	35.69	1.04	36.79	1.07	34.73	1.05	30.19	0.96	24.06	0.84	18.04	0.70	13.29	0.57	10.47	0.48	9.89	0.44
	8.68	9.64	0.47	11.16	0.51	14.71	0.60	19.72	0.75	25.47	0.90	30.86	1.03	34.57	1.12	35.64	1.15	33.67	1.12	29.29	1.04	23.37	0.91	17.55	0.76	12.95	0.61	10.21	0.51	9.64	0.47
	8.96	9.49	0.47	10.96	0.50	14.44	0.60	19.37	0.73	25.05	0.88	30.38	1.01	34.07	1.10	35.15	1.13	33.21	1.10	28.89	1.02	23.05	0.89	17.31	0.74	12.77	0.60	10.07	0.51	9.48	0.47
	9.19	9.37	0.07	10.82	0.08	14.24	0.09	19.08	0.11	24.64	0.13	29.86	0.14	33.47	0.15	34.52	0.15	32.62	0.14	28.39	0.13	22.67	0.11	17.04	0.09	12.60	0.08	9.94	0.07	9.37	0.07
	9.43	9.33	0.36	10.76	0.39	14.18	0.47	19.03	0.58	24.64	0.70	29.93	0.81	33.60	0.89	34.69	0.92	32.79	0.89	28.52	0.82	22.76	0.71	17.08	0.59	12.60	0.47	9.92	0.39	9.32	0.36
	9.93	8.81	0.43	10.14	0.46	13.34	0.55	17.90	0.68	23.18	0.81	28.17	0.93	31.63	1.01	32.68	1.04	30.91	1.01	26.91	0.93	21.50	0.82	16.15	0.68	11.92	0.55	9.39	0.46	8.81	0.43
	10.43	8.26	0.42	9.48	0.45	12.45	0.54	16.70	0.68	21.64	0.83	26.31	0.95	29.56	1.04	30.55	1.07	28.92	1.04	25.21	0.96	20.16	0.83	15.17	0.69	11.20	0.55	8.81	0.45	8.25	0.42
	10.94	7.57	0.50	8.67	0.54	11.36	0.64	15.24	0.79	19.74	0.96	23.99	1.11	26.96	1.21	27.89	1.24	26.42	1.21	23.05	1.11	18.47	0.97	13.92	0.80	10.29	0.65	8.10	0.54	7.57	0.50
	11.44	6.74	0.55	7.69	0.59	10.04	0.70	13.45	0.87	17.40	1.05	21.14	1.21	23.75	1.32	24.57	1.36	23.30	1.33	20.37	1.22	16.37	1.06	12.37	0.88	9.17	0.71	7.22	0.59	6.73	0.55
	11.94	5.95	0.49	6.77	0.53	8.84	0.64	11.89	0.80	15.47	0.97	18.89	1.11	21.31	1.22	22.10	1.25	20.97	1.22	18.31	1.12	14.68	0.97	11.06	0.81	8.18	0.65	6.41	0.54	5.95	0.49
	12.45	5.52	0.44	6.27	0.47	8.23	0.56	11.19	0.68	14.72	0.81	18.14	0.93	20.59	1.01	21.43	1.04	20.33	1.01	17.71	0.93	14.13	0.82	10.57	0.69	7.73	0.56	6.00	0.47	5.52	0.44
	12.96	4.18	0.58	4.73	0.62	6.22	0.74	8.48	0.91	11.19	1.08	13.83	1.24	15.73	1.34	16.40	1.38	15.57	1.35	13.56	1.25	10.81	1.09	8.07	0.91	5.90	0.75	4.56	0.62	4.18	0.58
	13.52	1.52	0.74	1.72	0.79	2.27	0.94	3.11	1.16	4.15	1.39	5.16	1.59	5.90	1.72	6.17	1.77	5.85	1.72	5.08	1.59	4.03	1.40	2.99	1.17	2.17	0.95	1.67	0.80	1.52	0.74
	13.63	0.80	0.79	0.90	0.85	1.20	1.01	1.66	1.24	2.23	1.48	2.80	1.69	3.22	1.83	3.37	1.88	3.20	1.83	2.76	1.70	2.18	1.49	1.60	1.25	1.15	1.02	0.88	0.85	0.80	0.79
	0.00	11.78	0.27	14.21	0.29	19.19	0.35	25.70	0.44	32.92	0.55	39.50	0.64	43.81	0.70	44.65	0.73	41.65	0.70	35.69	0.64	27.89	0.55	20.58	0.45	15.03	0.35	11.97	0.29	11.77	0.27
	0.50	11.62	0.34	13.99	0.37	18.88	0.44	25.29	0.54	32.39	0.65	38.87	0.75	43.12	0.82	43.96	0.85	41.03	0.82	35.19	0.76	27.52	0.66	20.32	0.54	14.85	0.44	11.83	0.37	11.61	0.34
	1.00	11.52	0.37	13.84	0.40	18.67	0.47	25.01	0.57	32.06	0.69	38.51	0.79	42.76	0.86	43.62	0.89	40.74	0.86	34.96	0.79	27.36	0.69	20.21	0.58	14.77	0.48	11.75	0.40	11.51	0.37
	1.50	11.43	0.38	13.71	0.40	18.46	0.48	24.74	0.58	31.74	0.70	38.16	0.80	42.40	0.87	43.29	0.90	40.45	0.88	34.74	0.81	27.22	0.71	20.12	0.59	14.71	0.49	11.69	0.41	11.43	0.38
	2.00	11.37	0.37	13.60	0.39	18.29	0.47	24.52	0.57	31.49	0.69	37.88	0.79	42.12	0.86	43.04	0.89	40.25	0.87	34.59	0.80	27.13	0.70	20.07	0.59	14.67	0.48	11.65	0.40	11.36	0.37
	2.50	11.31	0.36	13.50	0.39	18.14	0.46	24.33	0.56	31.27	0.68	37.65	0.78	41.90	0.85	42.85	0.88	40.10	0.86	34.49	0.79	27.07	0.69	20.04	0.58	14.66	0.47	11.63	0.40	11.30	0.36
	3.00	11.25	0.36	13.39	0.38	17.98	0.45	24.12	0.56	31.03	0.67	37.40	0.78	41.66	0.85	42.64	0.87	39.93	0.85	34.37	0.79	27.01	0.69	20.00	0.57	14.63	0.47	11.59	0.39	11.24	0.36
	3.50	11.18	0.36	13.28	0.38	17.81	0.45	23.90	0.56	30.77	0.67	37.12	0.78	41.38	0.85	42.38	0.87	39.72	0.85	34.21	0.79	26.91	0.69	19.95	0.57	14.60	0.47	11.56	0.39	11.18	0.36
	4.00	11.11	0.36	13.16	0.39	17.62	0.46	23.66	0.56	30.49	0.68	36.80	0.78	41.05	0.85	42.08	0.88	39.47	0.85	34.02	0.79	26.80	0.69	19.88	0.58	14.55	0.47	11.51	0.40	11.10	0.36
	4.50	11.02	0.38	13.02	0.40	17.41	0.47	23.37	0.58	30.13	0.70	36.40	0.80	40.63	0.87	41.68	0.90	39.12	0.88	33.75	0.81	26.61	0.71	19.77	0.59	14.47	0.49	11.44	0.41	11.01	0.38
Line #5	5.00	10.98	0.36	12.95	0.38	17.29	0.45	23.24	0.56	30.00	0.67	36.29	0.77	40.56	0.84	41.64	0.87	39.11	0.84	33.76	0.78	26.64	0.68	19.79	0.57	14.49	0.47	11.44	0.39	10.97	0.36
	5.56	10.86	0.20	12.80	0.22	17.08	0.26	22.93	0.31	29.57	0.37	35.74	0.42	39.92	0.45	40.97	0.46	38.49	0.44	33.24	0.41	26.25	0.36	19.52	0.30	14.31	0.25	11.31	0.21	10.85	0.20
	5.85	10.77	0.23	12.68	0.25	16.92	0.30	22.73	0.38	29.33	0.46	35.46	0.53	39.63	0.57	40.69	0.59	38.24	0.57	33.03	0.53	26.09	0.46	19.40	0.38	14.22	0.31	11.23	0.25	10.77	0.23
	6.36	10.54	0.28	12.39	0.30	16.51	0.36	22.15	0.45	28.57	0.55	34.53	0.63	38.59	0.69	39.63	0.71	37.26	0.69	32.21	0.63	25.48	0.54	18.97	0.45	13.92	0.36	11.00	0.30	10.53	0.28
	7.12	9.87	0.34	11.57	0.38	15.37	0.46	20.57	0.58	26.46	0.71	31.92	0.83	35.63	0.90	36.59	0.93	34.43	0.90	29.83	0.82	23.67	0.70	17.69	0.57	13.03	0.45	10.31	0.37	9.86	0.34
	7.96	8.61	0.46	10.06	0.51	13.30	0.62	17.73	0.77	22.73	0.94	27.33	1.08	30.44	1.18	31.24	1.21	29.44	1.17	25.58	1.07	20.39	0.92	15.33	0.76	11.35	0.60	9.01	0.50	8.61	0.46
	8.67	7.64	0.52	8.90	0.57	11.77	0.68	15.73	0.84	20.21	1.02	24.38	1.17	27.21	1.27	27.97	1.30	26.38	1.26	22.92	1.16	18.28	1.01	13.72	0.83	10.14	0.67	8.03	0.56	7.64	0.52
	9.17	7.10	0.45	8.25	0.50	10.90	0.61	14.62	0.76	18.85	0.93	22.81	1.07	25.52	1.17	26.28	1.21	24.80	1.17	21.55	1.07	17.17	0.92	12.88	0.75	9.50	0.59	7.49	0.49	7.09	0.45
	9.68	6.44	0.47	7.46	0.52	9.86	0.64	13.24	0.80	17.11	0.97	20.73	1.11	23.23	1.21	23.95	1.25	22.62	1.21	19.68	1.10	15.71	0.95	11.78	0.78	8.68	0.62	6.83	0.51	6.44	0.47
	10.18	5.73	0.30	6.61	0.33	8.72	0.42	11.72	0.54	15.20	0.68	18.47	0.80	20.73	0.89	21.41	0.92	20.25	0.88	17.62	0.79	14.07	0.67	10.55	0.52	7.77	0.40	6.10	0.32	5.72	0.30
	10.69	3.89	0.42	4.46	0.46	5.81	0.58	7.69	0.75	9.80	0.94	11.75	1.10	13.08	1.22	13.47	1.26	12.77	1.21	11.20	1.09	9.07	0.92	6.92	0.73	5.19	0.56	4.13	0.45	3.89	0.42
	11.24	1.37	0.00	1.57	0.00	2.02	0.00	2.64	0.00	3.31	0.01	3.92	0.01	4.34	0.01	4.46	0.01	4.23	0.01	3.74	0.01	3.06	0.01	2.38	0.00	1.81	0.00	1.45	0.00	1.37	0.00

RAA - Simulation - Raw Data
Table A7.2: TRAN - Fine Resolution

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
Line #1	0.00	11.01	0.26	13.35	0.29	17.86	0.35	23.88	0.44	30.56	0.54	36.60	0.64	40.53	0.70	41.17	0.72	38.32	0.70	32.63	0.64	25.55	0.55	18.76	0.44	13.61	0.35	10.87	0.29	10.85	0.26
	0.50	10.84	0.34	13.13	0.37	17.55	0.44	23.46	0.54	30.04	0.65	35.98	0.75	39.86	0.82	40.51	0.85	37.72	0.82	32.14	0.75	25.19	0.65	18.51	0.54	13.43	0.44	10.72	0.37	10.69	0.34
	1.00	10.73	0.38	12.97	0.40	17.32	0.47	23.17	0.58	29.69	0.69	35.61	0.80	39.48	0.87	40.16	0.89	37.41	0.87	31.90	0.80	25.01	0.70	18.39	0.59	13.35	0.48	10.64	0.41	10.59	0.38
	1.50	10.65	0.38	12.85	0.40	17.14	0.47	22.93	0.58	29.40	0.70	35.30	0.80	39.17	0.88	39.88	0.90	37.18	0.88	31.72	0.81	24.89	0.71	18.31	0.59	13.30	0.49	10.60	0.41	10.51	0.38
	2.00	10.58	0.38	12.73	0.40	16.97	0.47	22.72	0.58	29.16	0.69	35.04	0.80	38.92	0.87	39.66	0.90	37.00	0.88	31.59	0.81	24.81	0.71	18.27	0.59	13.28	0.49	10.57	0.41	10.45	0.38
	2.50	10.52	0.37	12.63	0.39	16.81	0.46	22.51	0.57	28.92	0.68	34.79	0.79	38.68	0.86	39.45	0.89	36.84	0.86	31.48	0.80	24.74	0.70	18.24	0.58	13.25	0.48	10.54	0.40	10.39	0.37
	3.00	10.45	0.36	12.52	0.38	16.65	0.45	22.31	0.56	28.68	0.67	34.54	0.78	38.44	0.85	39.23	0.88	36.66	0.85	31.36	0.79	24.67	0.69	18.20	0.58	13.23	0.47	10.51	0.39	10.34	0.36
	3.50	10.38	0.37	12.40	0.39	16.48	0.46	22.08	0.56	28.42	0.68	34.25	0.78	38.15	0.85	38.97	0.88	36.45	0.86	31.20	0.79	24.57	0.69	18.14	0.58	13.20	0.47	10.48	0.40	10.27	0.37
	4.00	10.30	0.37	12.27	0.39	16.30	0.46	21.84	0.57	28.12	0.68	33.92	0.79	37.81	0.86	38.66	0.89	36.19	0.87	31.00	0.80	24.44	0.70	18.07	0.58	13.15	0.48	10.43	0.40	10.20	0.37
	4.50	10.21	0.38	12.13	0.40	16.08	0.48	21.55	0.58	27.77	0.70	33.53	0.81	37.40	0.88	38.27	0.91	35.85	0.89	30.75	0.82	24.26	0.72	17.96	0.60	13.09	0.49	10.37	0.41	10.11	0.38
	5.00	10.16	0.39	12.04	0.40	15.96	0.47	21.40	0.58	27.61	0.70	33.37	0.80	37.27	0.88	38.17	0.90	35.79	0.88	30.71	0.82	24.26	0.72	17.96	0.60	13.09	0.50	10.36	0.42	10.07	0.39
	5.50	10.11	0.38	11.95	0.40	15.82	0.46	21.23	0.57	27.42	0.68	33.18	0.79	37.10	0.86	38.03	0.89	35.69	0.87	30.66	0.80	24.24	0.70	17.96	0.59	13.09	0.49	10.35	0.41	10.02	0.38
	6.00	9.96	0.40	11.73	0.42	15.50	0.50	20.78	0.61	26.83	0.73	32.46	0.85	36.29	0.92	37.22	0.95	34.96	0.93	30.07	0.86	23.82	0.75	17.70	0.63	12.92	0.52	10.22	0.44	9.87	0.40
	6.51	9.73	0.44	11.44	0.47	15.07	0.56	20.18	0.68	26.04	0.82	31.49	0.94	35.22	1.02	36.13	1.06	33.97	1.03	29.26	0.95	23.22	0.83	17.29	0.70	12.66	0.57	10.02	0.48	9.66	0.45
	6.82	9.70	0.45	11.37	0.47	14.99	0.56	20.09	0.68	25.95	0.81	31.44	0.93	35.20	1.02	36.14	1.05	33.99	1.02	29.28	0.95	23.23	0.83	17.29	0.70	12.65	0.58	10.00	0.49	9.62	0.45
	7.03	9.69	0.43	11.36	0.45	14.98	0.53	20.09	0.65	25.99	0.78	31.51	0.90	35.31	0.98	36.27	1.02	34.12	0.99	29.39	0.92	23.31	0.81	17.35	0.68	12.68	0.56	10.02	0.47	9.62	0.43
	7.23	9.69	0.39	11.34	0.41	14.95	0.49	20.07	0.61	25.99	0.73	31.55	0.85	35.38	0.93	36.37	0.96	34.22	0.94	29.48	0.87	23.38	0.76	17.39	0.64	12.71	0.52	10.03	0.43	9.61	0.40
	7.45	9.57	0.35	11.20	0.38	14.75	0.45	19.79	0.56	25.61	0.69	31.08	0.80	34.85	0.87	35.82	0.90	33.72	0.88	29.06	0.80	23.07	0.69	17.18	0.57	12.56	0.46	9.92	0.38	9.51	0.35
	7.65	9.48	0.39	11.08	0.42	14.58	0.50	19.56	0.61	25.32	0.73	30.74	0.84	34.47	0.92	35.44	0.95	33.38	0.92	28.78	0.85	22.86	0.74	17.03	0.62	12.46	0.50	9.83	0.42	9.42	0.39
	7.85	9.39	0.40	10.96	0.43	14.42	0.51	19.34	0.62	25.04	0.74	30.41	0.85	34.12	0.93	35.09	0.95	33.05	0.93	28.51	0.86	22.66	0.75	16.89	0.63	12.36	0.51	9.75	0.43	9.32	0.40
	8.05	9.29	0.42	10.84	0.45	14.25	0.53	19.12	0.65	24.76	0.78	30.08	0.90	33.76	0.98	34.73	1.01	32.73	0.98	28.24	0.91	22.45	0.80	16.74	0.67	12.25	0.55	9.67	0.46	9.23	0.42
	8.26	9.19	0.43	10.71	0.46	14.07	0.54	18.88	0.66	24.46	0.79	29.73	0.91	33.37	0.99	34.34	1.02	32.37	1.00	27.95	0.92	22.23	0.81	16.58	0.68	12.14	0.56	9.57	0.47	9.13	0.43
	8.46	9.09	0.44	10.58	0.47	13.89	0.55	18.64	0.68	24.16	0.81	29.36	0.94	32.98	1.02	33.95	1.05	32.01	1.03	27.64	0.95	22.00	0.83	16.42	0.70	12.02	0.57	9.48	0.48	9.04	0.44
	8.66	8.98	0.45	10.44	0.48	13.70	0.56	18.38	0.69	23.83	0.83	28.98	0.96	32.55	1.04	33.52	1.07	31.62	1.05	27.32	0.97	21.75	0.85	16.24	0.72	11.90	0.59	9.38	0.49	8.93	0.45
	8.87	8.87	0.45	10.29	0.48	13.50	0.57	18.12	0.70	23.49	0.84	28.58	0.97	32.11	1.06	33.08	1.09	31.21	1.06	26.98	0.98	21.48	0.86	16.05	0.72	11.76	0.59	9.27	0.50	8.81	0.46
	9.07	8.75	0.46	10.14	0.49	13.30	0.58	17.84	0.71	23.14	0.86	28.16	0.99	31.66	1.08	32.63	1.11	30.80	1.08	26.63	1.00	21.22	0.88	15.86	0.74	11.63	0.60	9.16	0.50	8.70	0.47
	9.60	8.38	0.50	9.68	0.53	12.67	0.63	16.99	0.77	22.04	0.92	26.84	1.05	30.19	1.15	31.14	1.18	29.42	1.15	25.47	1.07	20.33	0.93	15.22	0.79	11.17	0.64	8.80	0.54	8.33	0.50
	9.80	8.24	0.52	9.51	0.55	12.44	0.65	16.69	0.80	21.66	0.95	26.38	1.09	29.69	1.19	30.64	1.22	28.96	1.19	25.08	1.10	20.03	0.97	15.01	0.82	11.02	0.67	8.67	0.57	8.20	0.52
	10.49	7.77	0.37	8.94	0.39	11.69	0.45	15.68	0.53	20.36	0.61	24.83	0.68	27.96	0.73	28.87	0.75	27.30	0.73	23.65	0.68	18.89	0.60	14.16	0.52	10.40	0.45	8.19	0.39	7.73	0.37
	11.22	7.23	0.40	8.29	0.43	10.83	0.51	14.55	0.62	18.93	0.75	23.13	0.86	26.10	0.93	26.98	0.96	25.53	0.93	22.14	0.86	17.68	0.76	13.25	0.64	9.73	0.52	7.65	0.43	7.20	0.40
	12.24	6.19	0.46	7.08	0.49	9.23	0.58	12.42	0.71	16.21	0.85	19.86	0.98	22.47	1.07	23.27	1.10	22.05	1.07	19.14	0.99	15.30	0.87	11.48	0.72	8.43	0.59	6.61	0.49	6.18	0.46
	12.75	5.47	0.51	6.23	0.54	8.11	0.65	10.91	0.80	14.26	0.96	17.49	1.11	19.81	1.21	20.53	1.24	19.48	1.21	16.92	1.12	13.54	0.98	10.17	0.82	7.47	0.66	5.85	0.55	5.46	0.51
	13.15	4.82	0.56	5.47	0.60	7.12	0.72	9.59	0.88	12.56	1.06	15.44	1.22	17.51	1.32	18.17	1.36	17.24	1.33	14.99	1.23	11.99	1.08	9.01	0.91	6.62	0.74	5.18	0.61	4.81	0.56
	13.61	4.50	0.47	5.10	0.50	6.71	0.59	9.19	0.71	12.22	0.84	15.21	0.95	17.39	1.02	18.13	1.05	17.20	1.02	14.89	0.95	11.83	0.84	8.78	0.72	6.36	0.60	4.90	0.51	4.50	0.47
	14.19	2.65	0.64	3.01	0.68	4.02	0.79	5.63	0.95	7.64	1.12	9.67	1.27	11.19	1.37	11.71	1.40	11.10	1.37	9.54	1.27	7.47	1.13	5.45	0.96	3.86	0.80	2.92	0.68	2.65	0.64
	14.58	1.35	0.46	1.57	0.50	2.25	0.60	3.42	0.76	4.96	0.92	6.58	1.06	7.82	1.16	8.28	1.19	7.82	1.16	6.60	1.07	4.99	0.93	3.44	0.76	2.26	0.61	1.58	0.50	1.36	0.46
Line #2	0.00	11.01	0.26	13.35	0.29	17.86	0.35	23.88	0.44	30.56	0.54	36.60	0.64	40.53	0.70	41.17	0.72	38.32	0.70	32.63	0.64	25.55	0.55	18.76	0.44	13.61	0.35	10.87	0.29	10.85	0.26
	0.50	10.84	0.34	13.13	0.37	17.55	0.44	23.46	0.54	30.04	0.65	35.98	0.75	39.86	0.82	40.51	0.85	37.72	0.82	32.14	0.75	25.19	0.65	18.51	0.54	13.43	0.44	10.72	0.37	10.69	0.34
	1.00	10.73	0.38	12.97	0.40	17.32	0.47	23.17	0.58	29.69	0.69	35.61	0.80	39.48	0.87	40.16	0.89	37.41	0.87	31.90	0.80	25.01	0.70	18.39	0.59	13.35	0.48	10.64	0.41	10.59	0.38
	1.50	10.65	0.38	12.85	0.40	17.14	0.47	22.93	0.58	29.40	0.70	35.30	0.80	39.17	0.88	39.88	0.90	37.18	0.88	31.72	0.81	24.89	0.71	18.31	0.59	13.30	0.49	10.60	0.41	10.51	0.38
	2.00	10.58	0.38	12.73	0.40	16.97	0.47	22.72	0.58	29.16	0.69	35.04	0.80	38.92	0.87	39.66	0.90	37.00	0.88	31.59	0.81	24.81	0.71	18.27	0.59	13.28	0.49	10.57	0.41	10.45	0.38
	2.50	10.52	0.37	12.63	0.39	16.81	0.46	22.51	0.57	28.92	0.68	34.79	0.79	38.68	0.86	39.45	0.89	36.84	0.86	31.48	0.80	24.74	0.70	18.24	0.58	13.25	0.48	10.54	0.40	10.39	0.37
	3.00	10.45	0.36	12.52	0.38	16.65	0.45	22.31	0.56	28.68	0.67	34.54	0.78	38.44	0.85	39.23	0.88	36.66	0.85	31.36	0.79	24.67	0.69	18.20	0.58	13.23	0.47	10.51	0.39	10.34	0.36
	3.50	10.38	0.37	12.40	0.39	16.48	0.46	22.08	0.56	28.42	0.68	34.25	0.78	38.15	0.85	38.97	0.88	36.45	0.86	31.20	0.79	24.57	0.69	18.14	0.58	13.20	0.47	10.48	0.40	10.27	0.37
	4.00	10.30	0.37	12.27	0.39	16.30	0.46	21.84	0.57	28.12	0.68	33.92	0.79	37.81	0.86	38.66	0.89	36.19	0.87	31.00	0.80	24.44	0.70	18.07	0.58	13.15	0.48	10.43	0.40	10.20	0.37
	4.50	10.21	0.38	12.13	0.40	16.08	0.48	21.55	0.58	27.77	0.70	33.53	0.81	37.40	0.88	38.27	0.91	35.85	0.89	30.75	0.82	24.26	0.72	17.96	0.60	13.09	0.49	10.37	0.41	10.11	0.38
	5.00	10.16	0.39	12.04	0.40	15.96	0.47	21.40	0.58	27.61	0.70	33.37	0.80	37.27	0.88	38.17	0.90	35.79	0.88	30.71	0.82	24.26	0.72	17.96	0.60	13.09	0.50	10.36	0.42	10.07	0.39
	5.50	10.11	0.38	11.95	0.40	15.82	0.46	21.23	0.57	27.42	0.68	33.18	0.79	37.10	0.86	38.03	0.89	35.69	0.87	30.66	0.80	24.24	0.70	17.96	0.59	13.09	0.49	10.35	0.41	10.02	0.38
	6.00	9.96	0.40	11.73	0.42	15.50	0.50	20.78	0.61	26.83	0.73	32.46	0.85	36.29	0.92	37.22	0.95	34.96	0.93	30.07	0.86	23.82	0.75	17.70	0.63	12.92	0.52	10.22	0.44	9.87	0.40
	6.51	9.73	0.44	11.44	0.47	15.07	0.56	20.18	0.68	26.04	0.82	31.49	0.94	35.22	1.02	36.13	1.06	33.97	1.03	29.26	0.95	23.22	0.83	17.29	0.70	12.66	0.57	10.02	0.48	9.66	0.45
	6.82	9.70	0.45	11.37	0.47	14.99	0.56	20.09	0.68	25.95	0.81	31.44	0.93	35.20	1.02	36.14	1.05	33.99	1.02	29.28	0.95	23.23	0.83	17.29	0.70	12.65	0.58	10.00	0.49	9.62	0.45
	7.03	9.69	0.43	11.36	0.45	14.98	0.53	20.09	0.65	25.99	0.78	31.51	0.90	35.31	0.98	36.27	1.02	34.12	0.99	29.39	0.92	23.31	0.81	17.35	0.68	12.68	0.56	10.02	0.47	9.62	0.43
	7.23	9.69	0.39	11.34	0.41	14.95	0.49	20.07	0.61	25.99	0.73	31.55	0.85	35.38	0.93	36.37	0.96	34.22	0.94	29.48	0.87	23.38	0.76	17.39	0.64	12.71	0.52	10.03	0.43	9.61	0.40
	7.45	9.57	0.35	11.20	0.38	14.75	0.45	19.79	0.56	25.61	0.69	31.08	0.80	34.85	0.87	35.82	0.90	33.72	0.88	29.06	0.80	23.07	0.69	17.18	0.57	12.56	0.46	9.92	0.38	9.51	0.35
	7.65	9.48	0.39	11.08	0.42	14.58	0.50	19.56	0.61	25.32	0.73	30.74	0.84	34.47	0.92	35.44	0.95	33.38	0.92	28.78	0.85	22.86	0.74	17.03	0.62	12.46	0.50	9.83	0.42	9.42	0.39
	7.85	9.39	0.40	10.96	0.43	14.42	0.51	19.34	0.62	25.04	0.74	30.41	0.85	34.12	0.93	35.09	0.95	33.05	0.93	28.51	0.86	22.66	0.75	16.89	0.63	12.36	0.51	9.75	0.43	9.32	0.40
	8.05	9.29	0.42	10.84	0.45	14.25	0.53	19.12	0.65	24.76	0.78	30.08	0.90	33.76	0.98	34.73	1.01	32.73	0.98	28.24	0.91	22.45	0.80	16.74	0.67	12.25	0.55	9.67	0.46	9.23	0.42
	8.26	9.19	0.43	10.71	0.46	14.07	0.54	18.88	0.66	24.46	0.79	29.73	0.91	33.37	0.99	34.34	1.02	32.37	1.00	27.95	0.92	22.23	0.81	16.58	0.68	12.14	0.56	9.57	0.47	9.13	0.43
	8.46	9.09	0.44	10.58	0.47	13.89	0.55	18.64	0.68	24.16	0.81	29.36	0.94	32.98	1.02	33.95	1.05	32.01	1.03	27.64	0.95	22.00	0.83	16.42	0.70	12.02	0.57	9.48	0.48	9.04	0.44
	8.66	8.98	0.45	10.44	0.48	13.70	0.56	18.38	0.69	23.83	0.83	28.98	0.96	32.55	1.04	33.52	1.07	31.62	1.05	27.32	0.97	21.75	0.85	16.24	0.72	11.90	0.59	9.38	0.49	8.93	0.45
	8.87	8.87	0.45	10.29	0.48	13.50	0.57	18.12	0.70	23.49	0.84	28.58	0.97	32.11	1.06	33.08	1.09	31.21	1.06	26.98	0.98	21.48	0.86	16.05	0.72	11.76	0.59	9.27	0.50	8.81	0.46
	9.07	8.75	0.46	10.14	0.49	13.30	0.58	17.84	0.71	23.14	0.86	28.16	0.99	31.66	1.08	32.63	1.11	30.80	1.08	26.63	1.00	21.22	0.88	15.86	0.74	11.63	0.60	9.16	0.50	8.70	0.47
	9.60	8.38	0.50	9.68	0.53	12.67	0.63	16.99	0.77	22.04	0.92	26.84	1.05	30.19	1.15	31.14	1.18	29.42	1.15	25.47	1.07	20.33	0.93	15.22	0.79	11.17	0.64	8.80	0.54	8.33	0.50
	9.80	8.24	0.52	9.51	0.55	12.44	0.65	16.69	0.80	21.66	0.95	26.38	1.09	29.69	1.19	30.64	1.22	28.96	1.19	25.08	1.10	20.03	0.97	15.01	0.82	11.02	0.67	8.67	0.57	8.20	0.52
	10.12	8.37	0.39	9.64	0.42	12.65	0.50	17.06	0.62	22.27	0.74	27.26	0.86	30.79	0.94	31.84	0.97	30.11	0.95	26.06	0.88	20.76	0.77	15.50	0.64	11.33	0.52	8.87	0.43	8.34	0.40
	10.65	8.24	0.36	9.46	0.39	12.41	0.46	16.76	0.57	21.92	0.68	26.90	0.79	30.43	0.86	31.50	0.89	29.83	0.87	25.83	0.80	20.59	0.70	15.38	0.58	11.23	0.47	8.77	0.40	8.21	0.36
	11.19	7.84	0.40	8.98	0.43	11.76	0.51	15.89	0.63	20.80	0.76	25.53	0.88	28.91	0.96	29.95	0.99	28.39	0.96	24.61	0.89	19.65	0.78	14.69	0.65	10.74	0.53	8.38	0.44	7.82	0.41
	11.76	7.20	0.48	8.21	0.51	10.73	0.61	14.47	0.75	18.93	0.90	23.24	1.04	26.31	1.13	27.28	1.16	25.88	1.13	22.47	1.05	17.98	0.92	13.48	0.77	9.87	0.63	7.71	0.52	7.18	0.48
	12.35	6.20	0.59	7.04	0.63	9.15	0.75	12.28	0.92	16.01	1.10	19.60	1.27	22.17	1.38	22.98	1.42	21.84	1.38	19.02	1.28	15.29	1.12	11.53	0.94	8.49	0.77	6.65	0.64	6.19	0.59
	12.96	5.55	0.50	6.28	0.53	8.20	0.63	11.13	0.78	14.67	0.94	18.15	1.09	20.67	1.18	21.51	1.22	20.45	1.19	17.77	1.10	14.21	0.96	10.64	0.80	7.77	0.65	6.03	0.54	5.55	0.50
	13.66	2.90	0.76	3.26	0.81	4.22	0.96	5.67	1.17	7.40	1.40	9.07	1.61	10.27	1.75	10.67	1.80	10.17	1.76	8.89	1.62	7.18	1.43	5.44	1.20	4.02	0.98	3.14	0.82	2.90	0.76
	14.16	0.09	0.86	0.10	0.92	0.13	1.09	0.18	1.33	0.24	1.59	0.30	1.82	0.34	1.98	0.35	2.04	0.34	1.99	0.30	1.84	0.25	1.62	0.19	1.36	0.14	1.11	0.10	0.93	0.09	0.86
	0.00	11.01	0.26	13.35	0.29	17.86	0.35	23.88	0.44	30.56	0.54	36.60	0.64	40.53	0.70	41.17	0.72	38.32	0.70	32.63	0.64	25.55	0.55	18.76	0.44	13.61	0.35	10.87	0.29	10.85	0.26
	0.50	10.84	0.34	13.13	0.37	17.55	0.44	23.46	0.54	30.04	0.65	35.98	0.75	39.86	0.82	40.51	0.85	37.72	0.82	32.14	0.75	25.19	0.65	18.51	0.54	13.43	0.44	10.72	0.37	10.69	0.34
	1.00	10.73	0.38	12.97	0.40	17.32	0.47	23.17	0.58	29.69	0.69	35.61	0.80	39.48	0.87	40.16	0.89	37.41	0.87	31.90	0.80	25.01	0.70	18.39	0.59	13.35	0.48	10.64	0.41	10.59	0.38
	1.50	10.65	0.38	12.85	0.40	17.14	0.47	22.93	0.58	29.40	0.70	35.30	0.80	39.17	0.88	39.88	0.90	37.18	0.88	31.72	0.81	24.89	0.71	18.31	0.59	13.30	0.49	10.60	0.41	10.51	0.38
	2.00	10.58	0.38	12.73	0.40	16.97	0.47	22.72	0.58	29.16	0.69	35.04	0.80	38.92	0.87	39.66	0.90	37.00	0.88	31.59	0.81	24.81	0.71	18.27	0.59	13.28	0.49	10.57	0.41	10.45	0.38
	2.50	10.52	0.37	12.63	0.39	16.81	0.46	22.51	0.57	28.92	0.68	34.79	0.79	38.68	0.86	39.45	0.89	36.84	0.86	31.48	0.80	24.74	0.70	18.24	0.58	13.25	0.48	10.54	0.40	10.39	0.37
	3.00	10.45	0.36	12.52	0.38	16.65	0.45	22.31	0.56	28.68	0.67	34.54	0.78	38.44	0.85	39.23	0.88	36.66	0.85	31.36	0.79	24.67	0.69	18.20	0.58	13.23	0.47	10.51	0.39	10.34	0.36

	3.50	10.38	0.37	12.40	0.39	16.48	0.46	22.08	0.56	28.42	0.68	34.25	0.78	38.15	0.85	38.97	0.88	36.45	0.86	31.20	0.79	24.57	0.69	18.14	0.58	13.20	0.47	10.48	0.40	10.27	0.37
	4.00	10.30	0.37	12.27	0.39	16.30	0.46	21.84	0.57	28.12	0.68	33.92	0.79	37.81	0.86	38.66	0.89	36.19	0.87	31.00	0.80	24.44	0.70	18.07	0.58	13.15	0.48	10.43	0.40	10.20	0.37
	4.50	10.21	0.38	12.13	0.40	16.08	0.48	21.55	0.58	27.77	0.70	33.53	0.81	37.40	0.88	38.27	0.91	35.85	0.89	30.75	0.82	24.26	0.72	17.96	0.60	13.09	0.49	10.37	0.41	10.11	0.38
	5.00	10.16	0.39	12.04	0.40	15.96	0.47	21.40	0.58	27.61	0.70	33.37	0.80	37.27	0.88	38.17	0.90	35.79	0.88	30.71	0.82	24.26	0.72	17.96	0.60	13.09	0.50	10.36	0.42	10.07	0.39
	5.50	10.11	0.38	11.95	0.40	15.82	0.46	21.23	0.57	27.42	0.68	33.18	0.79	37.10	0.86	38.03	0.89	35.69	0.87	30.66	0.80	24.24	0.70	17.96	0.59	13.09	0.49	10.35	0.41	10.02	0.38
	6.00	9.96	0.40	11.73	0.42	15.50	0.50	20.78	0.61	26.83	0.73	32.46	0.85	36.29	0.92	37.22	0.95	34.96	0.93	30.07	0.86	23.82	0.75	17.70	0.63	12.92	0.52	10.22	0.44	9.87	0.40
	6.51	9.73	0.44	11.44	0.47	15.07	0.56	20.18	0.68	26.04	0.82	31.49	0.94	35.22	1.02	36.13	1.06	33.97	1.03	29.26	0.95	23.22	0.83	17.29	0.70	12.66	0.57	10.02	0.48	9.66	0.45
	6.82	9.70	0.45	11.37	0.47	14.99	0.56	20.09	0.68	25.95	0.81	31.44	0.93	35.20	1.02	36.14	1.05	33.99	1.02	29.28	0.95	23.23	0.83	17.29	0.70	12.65	0.58	10.00	0.49	9.62	0.45
	7.02	9.72	0.43	11.40	0.45	15.02	0.52	20.16	0.64	26.08	0.77	31.64	0.88	35.46	0.96	36.43	0.99	34.27	0.97	29.52	0.90	23.41	0.79	17.42	0.67	12.73	0.55	10.05	0.46	9.65	0.43
Line #3	7.24	9.75	0.36	11.41	0.38	15.05	0.45	20.22	0.56	26.19	0.67	31.80	0.78	35.67	0.85	36.67	0.87	34.51	0.85	29.72	0.79	23.57	0.69	17.52	0.58	12.80	0.47	10.09	0.39	9.68	0.36
	7.47	9.66	0.34	11.30	0.36	14.90	0.43	20.00	0.54	25.90	0.66	31.44	0.76	35.25	0.83	36.24	0.86	34.11	0.84	29.39	0.77	23.33	0.67	17.36	0.55	12.69	0.44	10.01	0.37	9.59	0.34
	7.70	9.56	0.32	11.17	0.35	14.70	0.42	19.73	0.51	25.54	0.62	31.00	0.72	34.76	0.78	35.74	0.80	33.66	0.78	29.02	0.71	23.06	0.61	17.18	0.51	12.57	0.41	9.92	0.34	9.49	0.32
	7.94	9.42	0.36	10.99	0.39	14.46	0.47	19.38	0.57	25.08	0.69	30.43	0.79	34.12	0.86	35.09	0.88	33.06	0.86	28.53	0.79	22.69	0.68	16.93	0.57	12.40	0.46	9.78	0.39	9.36	0.36
	8.17	9.26	0.41	10.79	0.44	14.18	0.52	19.00	0.64	24.57	0.77	29.80	0.88	33.40	0.96	34.35	0.99	32.38	0.96	27.97	0.88	22.26	0.77	16.63	0.64	12.20	0.53	9.63	0.44	9.20	0.41
	8.40	9.09	0.45	10.58	0.48	13.88	0.57	18.57	0.70	24.00	0.84	29.10	0.97	32.61	1.06	33.55	1.09	31.63	1.06	27.34	0.98	21.79	0.85	16.30	0.71	11.97	0.58	9.46	0.49	9.03	0.45
	8.68	8.84	0.48	10.26	0.51	13.44	0.61	17.96	0.75	23.19	0.90	28.09	1.03	31.47	1.13	32.37	1.16	30.54	1.13	26.42	1.04	21.09	0.91	15.81	0.76	11.63	0.62	9.20	0.52	8.78	0.48
	8.96	8.68	0.47	10.06	0.50	13.18	0.60	17.61	0.74	22.76	0.89	27.59	1.02	30.94	1.11	31.84	1.14	30.05	1.11	26.01	1.02	20.76	0.89	15.57	0.75	11.46	0.61	9.06	0.51	8.63	0.47
	9.25	8.76	0.30	10.15	0.33	13.31	0.41	17.86	0.51	23.15	0.63	28.15	0.73	31.63	0.80	32.58	0.82	30.75	0.80	26.59	0.73	21.19	0.62	15.86	0.51	11.64	0.40	9.18	0.33	8.71	0.30
	9.57	8.70	0.26	10.07	0.28	13.21	0.34	17.72	0.41	23.00	0.49	27.99	0.57	31.46	0.61	32.43	0.63	30.62	0.61	26.49	0.55	21.12	0.48	15.80	0.39	11.59	0.32	9.13	0.27	8.66	0.26
	10.39	8.27	0.35	9.54	0.38	12.49	0.46	16.78	0.57	21.81	0.69	26.59	0.79	29.95	0.87	30.91	0.89	29.23	0.87	25.31	0.80	20.20	0.70	15.13	0.58	11.10	0.47	8.73	0.39	8.24	0.35
	11.25	7.49	0.44	8.60	0.47	11.22	0.56	15.04	0.70	19.53	0.84	23.81	0.97	26.82	1.06	27.71	1.09	26.24	1.06	22.77	0.97	18.24	0.85	13.71	0.71	10.09	0.57	7.94	0.47	7.46	0.44
	11.92	6.32	0.58	7.22	0.62	9.35	0.74	12.47	0.91	16.11	1.09	19.56	1.26	21.98	1.37	22.70	1.41	21.53	1.37	18.76	1.26	15.11	1.10	11.45	0.92	8.49	0.75	6.71	0.62	6.30	0.58
	12.50	5.64	0.44	6.42	0.48	8.34	0.57	11.18	0.70	14.55	0.84	17.77	0.97	20.06	1.05	20.77	1.08	19.72	1.05	17.17	0.96	13.79	0.84	10.41	0.70	7.68	0.57	6.03	0.47	5.63	0.44
	13.04	3.03	0.63	3.42	0.69	4.33	0.84	5.63	1.05	7.11	1.28	8.47	1.48	9.39	1.62	9.66	1.66	9.20	1.61	8.12	1.48	6.68	1.28	5.19	1.05	3.96	0.83	3.20	0.68	3.02	0.63
	13.56	0.29	0.69	0.32	0.75	0.38	0.91	0.43	1.12	0.47	1.36	0.48	1.57	0.47	1.71	0.46	1.76	0.44	1.71	0.42	1.57	0.40	1.36	0.36	1.13	0.32	0.91	0.29	0.75	0.29	0.69
	13.66	0.02	0.52	0.02	0.57	0.02	0.70	0.01	0.88	0.00	1.08	-0.01	1.27	-0.02	1.39	-0.02	1.43	-0.02	1.39	-0.01	1.26	-0.01	1.08	0.00	0.88	0.01	0.70	0.01	0.57	0.02	0.53
	0.00	11.01	0.26	13.35	0.29	17.86	0.35	23.88	0.44	30.56	0.54	36.60	0.64	40.53	0.70	41.17	0.72	38.32	0.70	32.63	0.64	25.55	0.55	18.76	0.44	13.61	0.35	10.87	0.29	10.85	0.26
	0.50	10.84	0.34	13.13	0.37	17.55	0.44	23.46	0.54	30.04	0.65	35.98	0.75	39.86	0.82	40.51	0.85	37.72	0.82	32.14	0.75	25.19	0.65	18.51	0.54	13.43	0.44	10.72	0.37	10.69	0.34
	1.00	10.73	0.38	12.97	0.40	17.32	0.47	23.17	0.58	29.69	0.69	35.61	0.80	39.48	0.87	40.16	0.89	37.41	0.87	31.90	0.80	25.01	0.70	18.39	0.59	13.35	0.48	10.64	0.41	10.59	0.38
	1.50	10.65	0.38	12.85	0.40	17.14	0.47	22.93	0.58	29.40	0.70	35.30	0.80	39.17	0.88	39.88	0.90	37.18	0.88	31.72	0.81	24.89	0.71	18.31	0.59	13.30	0.49	10.60	0.41	10.51	0.38
	2.00	10.58	0.38	12.73	0.40	16.97	0.47	22.72	0.58	29.16	0.69	35.04	0.80	38.92	0.87	39.66	0.90	37.00	0.88	31.59	0.81	24.81	0.71	18.27	0.59	13.28	0.49	10.57	0.41	10.45	0.38
	2.50	10.52	0.37	12.63	0.39	16.81	0.46	22.51	0.57	28.92	0.68	34.79	0.79	38.68	0.86	39.45	0.89	36.84	0.86	31.48	0.80	24.74	0.70	18.24	0.58	13.25	0.48	10.54	0.40	10.39	0.37
	3.00	10.45	0.36	12.52	0.38	16.65	0.45	22.31	0.56	28.68	0.67	34.54	0.78	38.44	0.85	39.23	0.88	36.66	0.85	31.36	0.79	24.67	0.69	18.20	0.58	13.23	0.47	10.51	0.39	10.34	0.36
	3.50	10.38	0.37	12.40	0.39	16.48	0.46	22.08	0.56	28.42	0.68	34.25	0.78	38.15	0.85	38.97	0.88	36.45	0.86	31.20	0.79	24.57	0.69	18.14	0.58	13.20	0.47	10.48	0.40	10.27	0.37
	4.00	10.30	0.37	12.27	0.39	16.30	0.46	21.84	0.57	28.12	0.68	33.92	0.79	37.81	0.86	38.66	0.89	36.19	0.87	31.00	0.80	24.44	0.70	18.07	0.58	13.15	0.48	10.43	0.40	10.20	0.37
	4.50	10.21	0.38	12.13	0.40	16.08	0.48	21.55	0.58	27.77	0.70	33.53	0.81	37.40	0.88	38.27	0.91	35.85	0.89	30.75	0.82	24.26	0.72	17.96	0.60	13.09	0.49	10.37	0.41	10.11	0.38
	5.00	10.16	0.39	12.04	0.40	15.96	0.47	21.40	0.58	27.61	0.70	33.37	0.80	37.27	0.88	38.17	0.90	35.79	0.88	30.71	0.82	24.26	0.72	17.96	0.60	13.09	0.50	10.36	0.42	10.07	0.39
	5.50	10.11	0.38	11.95	0.40	15.82	0.46	21.23	0.57	27.42	0.68	33.18	0.79	37.10	0.86	38.03	0.89	35.69	0.87	30.66	0.80	24.24	0.70	17.96	0.59	13.09	0.49	10.35	0.41	10.02	0.38
	6.00	9.96	0.40	11.73	0.42	15.50	0.50	20.78	0.61	26.83	0.73	32.46	0.85	36.29	0.92	37.22	0.95	34.96	0.93	30.07	0.86	23.82	0.75	17.70	0.63	12.92	0.52	10.22	0.44	9.87	0.40
	6.51	9.73	0.44	11.44	0.47	15.07	0.56	20.18	0.68	26.04	0.82	31.49	0.94	35.22	1.02	36.13	1.06	33.97	1.03	29.26	0.95	23.22	0.83	17.29	0.70	12.66	0.57	10.02	0.48	9.66	0.45
	6.82	9.70	0.45	11.37	0.47	14.99	0.56	20.09	0.68	25.95	0.81	31.44	0.93	35.20	1.02	36.14	1.05	33.99	1.02	29.28	0.95	23.23	0.83	17.29	0.70	12.65	0.58	10.00	0.49	9.62	0.45
	7.02	9.72	0.43	11.40	0.45	15.02	0.52	20.16	0.64	26.08	0.77	31.64	0.88	35.46	0.96	36.43	0.99	34.27	0.97	29.52	0.90	23.41	0.79	17.42	0.67	12.73	0.55	10.05	0.46	9.65	0.43
	7.24	9.75	0.36	11.41	0.38	15.05	0.45	20.22	0.56	26.19	0.67	31.80	0.78	35.67	0.85	36.67	0.87	34.51	0.85	29.72	0.79	23.57	0.69	17.52	0.58	12.80	0.47	10.09	0.39	9.68	0.36
Line #4	7.47	9.66	0.34	11.30	0.36	14.90	0.43	20.00	0.54	25.90	0.66	31.44	0.76	35.25	0.83	36.24	0.86	34.11	0.84	29.39	0.77	23.33	0.67	17.36	0.55	12.69	0.44	10.01	0.37	9.59	0.34
	7.70	9.56	0.32	11.17	0.35	14.70	0.42	19.73	0.51	25.54	0.62	31.00	0.72	34.76	0.78	35.74	0.80	33.66	0.78	29.02	0.71	23.06	0.61	17.18	0.51	12.57	0.41	9.92	0.34	9.49	0.32
	7.94	9.42	0.36	10.99	0.39	14.46	0.47	19.38	0.57	25.08	0.69	30.43	0.79	34.12	0.86	35.09	0.88	33.06	0.86	28.53	0.79	22.69	0.68	16.93	0.57	12.40	0.46	9.78	0.39	9.36	0.36
	8.17	9.26	0.41	10.79	0.44	14.18	0.52	19.00	0.64	24.57	0.77	29.80	0.88	33.40	0.96	34.35	0.99	32.38	0.96	27.97	0.88	22.26	0.77	16.63	0.64	12.20	0.53	9.63	0.44	9.20	0.41
	8.40	9.09	0.45	10.58	0.48	13.88	0.57	18.57	0.70	24.00	0.84	29.10	0.97	32.61	1.06	33.55	1.09	31.63	1.06	27.34	0.98	21.79	0.85	16.30	0.71	11.97	0.58	9.46	0.49	9.03	0.45
	8.68	8.84	0.48	10.26	0.51	13.44	0.61	17.96	0.75	23.19	0.90	28.09	1.03	31.47	1.13	32.37	1.16	30.54	1.13	26.42	1.04	21.09	0.91	15.81	0.76	11.63	0.62	9.20	0.52	8.78	0.48
	8.96	8.68	0.47	10.06	0.50	13.18	0.60	17.61	0.74	22.76	0.89	27.59	1.02	30.94	1.11	31.84	1.14	30.05	1.11	26.01	1.02	20.76	0.89	15.57	0.75	11.46	0.61	9.06	0.51	8.63	0.47
	9.19	8.55	0.06	9.91	0.07	12.96	0.08	17.31	0.09	22.33	0.09	27.03	0.08	30.28	0.07	31.14	0.07	29.39	0.06	25.46	0.06	20.35	0.06	15.28	0.06	11.27	0.06	8.92	0.06	8.50	0.06
	9.43	8.51	0.35	9.86	0.38	12.90	0.45	17.27	0.57	22.33	0.69	27.11	0.80	30.42	0.88	31.33	0.91	29.57	0.88	25.59	0.80	20.43	0.69	15.31	0.56	11.27	0.45	8.90	0.37	8.47	0.35
	9.93	8.04	0.42	9.29	0.45	12.15	0.54	16.26	0.66	21.05	0.78	25.59	0.89	28.76	0.97	29.64	1.00	28.01	0.97	24.25	0.89	19.37	0.78	14.52	0.65	10.69	0.54	8.43	0.45	8.00	0.42
	10.43	7.49	0.41	8.63	0.44	11.27	0.53	15.08	0.67	19.53	0.81	23.74	0.93	26.70	1.02	27.54	1.05	26.04	1.02	22.57	0.93	18.04	0.81	13.55	0.67	9.98	0.54	7.88	0.44	7.45	0.41
	10.94	6.83	0.49	7.85	0.53	10.23	0.64	13.68	0.79	17.70	0.95	21.52	1.10	24.20	1.20	24.98	1.23	23.64	1.20	20.51	1.10	16.44	0.96	12.37	0.80	9.13	0.64	7.21	0.53	6.80	0.49
	11.44	6.01	0.54	6.89	0.58	8.95	0.70	11.93	0.86	15.43	1.04	18.74	1.20	21.07	1.31	21.75	1.35	20.61	1.31	17.92	1.21	14.39	1.05	10.87	0.87	8.04	0.70	6.36	0.58	5.99	0.54
	11.94	5.25	0.48	5.99	0.52	7.79	0.63	10.43	0.78	13.54	0.95	16.53	1.10	18.64	1.21	19.28	1.25	18.28	1.21	15.89	1.11	12.75	0.96	9.61	0.79	7.09	0.63	5.58	0.52	5.23	0.48
	12.45	4.87	0.43	5.55	0.46	7.26	0.55	9.84	0.66	12.93	0.78	15.94	0.89	18.11	0.97	18.80	0.99	17.84	0.96	15.46	0.89	12.34	0.78	9.22	0.66	6.73	0.54	5.24	0.46	4.86	0.43
	12.96	3.63	0.57	4.13	0.61	5.41	0.73	7.37	0.89	9.73	1.07	12.04	1.23	13.72	1.34	14.27	1.37	13.54	1.34	11.73	1.24	9.35	1.08	6.97	0.91	5.07	0.74	3.93	0.62	3.63	0.57
	13.52	1.25	0.75	1.42	0.80	1.86	0.95	2.54	1.16	3.36	1.38	4.17	1.58	4.76	1.72	4.95	1.77	4.71	1.72	4.07	1.59	3.24	1.39	2.41	1.17	1.76	0.96	1.36	0.81	1.25	0.75
	13.63	0.60	0.81	0.68	0.87	0.89	1.03	1.22	1.25	1.62	1.49	2.02	1.70	2.31	1.85	2.41	1.90	2.29	1.85	1.97	1.71	1.56	1.51	1.16	1.27	0.84	1.04	0.65	0.88	0.60	0.82
	0.00	11.01	0.26	13.35	0.29	17.86	0.35	23.88	0.44	30.56	0.54	36.60	0.64	40.53	0.70	41.17	0.72	38.32	0.70	32.63	0.64	25.55	0.55	18.76	0.44	13.61	0.35	10.87	0.29	10.85	0.26
	0.50	10.84	0.34	13.13	0.37	17.55	0.44	23.46	0.54	30.04	0.65	35.98	0.75	39.86	0.82	40.51	0.85	37.72	0.82	32.14	0.75	25.19	0.65	18.51	0.54	13.43	0.44	10.72	0.37	10.69	0.34
	1.00	10.73	0.38	12.97	0.40	17.32	0.47	23.17	0.58	29.69	0.69	35.61	0.80	39.48	0.87	40.16	0.89	37.41	0.87	31.90	0.80	25.01	0.70	18.39	0.59	13.35	0.48	10.64	0.41	10.59	0.38
	1.50	10.65	0.38	12.85	0.40	17.14	0.47	22.93	0.58	29.40	0.70	35.30	0.80	39.17	0.88	39.88	0.90	37.18	0.88	31.72	0.81	24.89	0.71	18.31	0.59	13.30	0.49	10.60	0.41	10.51	0.38
	2.00	10.58	0.38	12.73	0.40	16.97	0.47	22.72	0.58	29.16	0.69	35.04	0.80	38.92	0.87	39.66	0.90	37.00	0.88	31.59	0.81	24.81	0.71	18.27	0.59	13.28	0.49	10.57	0.41	10.45	0.38
	2.50	10.52	0.37	12.63	0.39	16.81	0.46	22.51	0.57	28.92	0.68	34.79	0.79	38.68	0.86	39.45	0.89	36.84	0.86	31.48	0.80	24.74	0.70	18.24	0.58	13.25	0.48	10.54	0.40	10.39	0.37
	3.00	10.45	0.36	12.52	0.38	16.65	0.45	22.31	0.56	28.68	0.67	34.54	0.78	38.44	0.85	39.23	0.88	36.66	0.85	31.36	0.79	24.67	0.69	18.20	0.58	13.23	0.47	10.51	0.39	10.34	0.36
	3.50	10.38	0.37	12.40	0.39	16.48	0.46	22.08	0.56	28.42	0.68	34.25	0.78	38.15	0.85	38.97	0.88	36.45	0.86	31.20	0.79	24.57	0.69	18.14	0.58	13.20	0.47	10.48	0.40	10.27	0.37
	4.00	10.30	0.37	12.27	0.39	16.30	0.46	21.84	0.57	28.12	0.68	33.92	0.79	37.81	0.86	38.66	0.89	36.19	0.87	31.00	0.80	24.44	0.70	18.07	0.58	13.15	0.48	10.43	0.40	10.20	0.37
	4.50	10.21	0.38	12.13	0.40	16.08	0.48	21.55	0.58	27.77	0.70	33.53	0.81	37.40	0.88	38.27	0.91	35.85	0.89	30.75	0.82	24.26	0.72	17.96	0.60	13.09	0.49	10.37	0.41	10.11	0.38
Line #5	5.00	10.16	0.39	12.04	0.40	15.96	0.47	21.40	0.58	27.61	0.70	33.37	0.80	37.27	0.88	38.17	0.90	35.79	0.88	30.71	0.82	24.26	0.72	17.96	0.60	13.09	0.50	10.36	0.42	10.07	0.39
	5.56	10.03	0.18	11.88	0.19	15.73	0.22	21.06	0.26	27.13	0.29	32.75	0.31	36.53	0.33	37.39	0.33	35.06	0.32	30.10	0.30	23.80	0.27	17.66	0.23	12.89	0.20	10.22	0.18	9.93	0.18
	5.85	9.94	0.23	11.77	0.25	15.58	0.30	20.87	0.37	26.91	0.45	32.51	0.52	36.30	0.56	37.18	0.58	34.87	0.56	29.94	0.51	23.67	0.45	17.55	0.37	12.81	0.30	10.15	0.25	9.85	0.23
	6.36	9.71	0.29	11.47	0.31	15.16	0.37	20.30	0.46	26.16	0.56	31.60	0.64	35.29	0.70	36.15	0.72	33.93	0.70	29.15	0.64	23.07	0.56	17.13	0.46	12.52	0.37	9.92	0.31	9.62	0.29
	7.12	9.04	0.34	10.66	0.37	14.04	0.46	18.74	0.58	24.09	0.71	29.05	0.82	32.40	0.90	33.19	0.92	31.18	0.89	26.85	0.81	21.31	0.70	15.89	0.57	11.65	0.45	9.26	0.36	8.97	0.34
	7.96	7.79	0.44	9.15	0.49	11.99	0.60	15.92	0.75	20.36	0.92	24.46	1.07	27.21	1.17	27.86	1.20	26.20	1.16	22.63	1.06	18.06	0.91	13.55	0.74	10.01	0.58	7.98	0.48	7.73	0.44
	8.67	6.85	0.51	8.02	0.55	10.51	0.67	13.98	0.83	17.94	1.00	21.61	1.15	24.11	1.25	24.72	1.28	23.26	1.24	20.10	1.14	16.03	0.99	12.02	0.82	8.87	0.66	7.05	0.55	6.80	0.51
	9.17	6.28	0.45	7.34	0.49	9.63	0.60	12.85	0.75	16.55	0.91	20.00	1.05	22.37	1.14	22.97	1.18	21.64	1.14	18.70	1.04	14.91	0.90	11.16	0.73	8.21	0.58	6.51	0.48	6.24	0.45
	9.68	5.63	0.46	6.55	0.50	8.58	0.61	11.45	0.76	14.76	0.93	17.86	1.07	19.99	1.17	20.56	1.20	19.39	1.16	16.78	1.06	13.40	0.91	10.05	0.75	7.40	0.60	5.86	0.49	5.59	0.46
	10.18	4.90	0.30	5.68	0.33	7.43	0.42	9.92	0.54	12.82	0.68	15.54	0.80	17.43	0.89	17.95	0.92	16.95	0.88	14.68	0.79	11.73	0.66	8.81	0.52	6.49	0.40	5.13	0.32	4.88	0.30
	10.69	3.36	0.38	3.88	0.43	5.04	0.54	6.69	0.69	8.58	0.87	10.36	1.03	11.58	1.14	11.92	1.18	11.27	1.14	9.79	1.02	7.87	0.85	5.96	0.67	4.42	0.52	3.52	0.41	3.35	0.39
	11.24	1.12	0.05	1.29	0.06	1.66	0.08	2.16	0.10	2.74	0.13	3.27	0.15	3.63	0.17	3.72	0.18	3.52	0.17	3.08	0.15	2.50	0.12	1.92	0.09	1.45	0.07	1.16	0.06	1.11	0.05

RAA - Simulation - Raw Data

Table A7.3: TRAN - Finer Resolution

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
Line #1	0.00	10.94	0.26	13.28	0.29	17.65	0.35	23.62	0.44	30.28	0.54	36.31	0.64	40.09	0.70	40.89	0.72	38.39	0.70	32.42	0.64	25.40	0.54	18.60	0.44	13.50	0.35	10.97	0.29	10.94	0.26
	0.50	10.76	0.35	13.05	0.37	17.33	0.44	23.18	0.55	29.72	0.66	35.66	0.76	39.41	0.83	40.19	0.85	37.74	0.83	31.89	0.76	25.00	0.66	18.32	0.55	13.30	0.45	10.80	0.38	10.76	0.35
	1.00	10.65	0.38	12.89	0.41	17.10	0.48	22.89	0.59	29.36	0.71	35.25	0.81	39.00	0.88	39.78	0.91	37.37	0.88	31.61	0.81	24.79	0.71	18.19	0.60	13.21	0.49	10.72	0.41	10.65	0.38
	1.50	10.57	0.39	12.76	0.42	16.92	0.49	22.65	0.60	29.08	0.72	34.94	0.83	38.69	0.90	39.48	0.93	37.11	0.90	31.42	0.83	24.66	0.73	18.12	0.61	13.17	0.50	10.67	0.43	10.57	0.39
	2.00	10.50	0.39	12.65	0.41	16.76	0.49	22.44	0.60	28.84	0.72	34.68	0.83	38.46	0.90	39.25	0.93	36.92	0.90	31.30	0.83	24.58	0.73	18.07	0.61	13.15	0.50	10.63	0.42	10.51	0.39
	2.50	10.44	0.39	12.55	0.41	16.61	0.48	22.25	0.59	28.61	0.71	34.44	0.82	38.24	0.90	39.04	0.92	36.75	0.90	31.19	0.83	24.52	0.73	18.04	0.61	13.13	0.50	10.60	0.42	10.44	0.39
	3.00	10.38	0.38	12.44	0.41	16.45	0.48	22.05	0.59	28.38	0.71	34.19	0.81	38.00	0.89	38.82	0.91	36.56	0.89	31.06	0.82	24.44	0.72	18.01	0.61	13.11	0.50	10.57	0.42	10.38	0.38
	3.50	10.31	0.39	12.32	0.41	16.29	0.48	21.83	0.59	28.12	0.71	33.90	0.82	37.73	0.90	38.55	0.92	36.33	0.90	30.90	0.83	24.34	0.73	17.95	0.61	13.08	0.51	10.53	0.42	10.31	0.39
	4.00	10.23	0.39	12.20	0.41	16.10	0.48	21.59	0.59	27.82	0.72	33.57	0.82	37.40	0.90	38.22	0.93	36.05	0.90	30.70	0.83	24.21	0.73	17.88	0.61	13.03	0.50	10.48	0.42	10.23	0.39
	4.50	10.14	0.40	12.05	0.43	15.89	0.50	21.31	0.61	27.47	0.74	33.17	0.85	36.99	0.93	37.81	0.96	35.69	0.93	30.43	0.86	24.02	0.75	17.77	0.63	12.97	0.52	10.42	0.44	10.14	0.40
	5.00	10.09	0.41	11.96	0.43	15.77	0.50	21.16	0.61	27.32	0.73	33.02	0.84	36.88	0.92	37.73	0.95	35.64	0.93	30.41	0.86	24.02	0.75	17.78	0.64	12.97	0.53	10.40	0.44	10.09	0.41
	5.50	10.05	0.40	11.88	0.42	15.65	0.49	21.02	0.60	27.17	0.72	32.88	0.83	36.75	0.91	37.65	0.93	35.57	0.91	30.40	0.84	24.03	0.74	17.80	0.63	12.99	0.52	10.39	0.44	10.05	0.40
	6.00	9.90	0.42	11.67	0.44	15.34	0.52	20.58	0.63	26.59	0.76	32.18	0.88	35.98	0.96	36.87	0.99	34.85	0.96	29.83	0.89	23.62	0.78	17.54	0.65	12.83	0.54	10.26	0.45	9.90	0.42
	6.51	9.67	0.46	11.36	0.49	14.91	0.57	19.97	0.70	25.78	0.85	31.18	0.97	34.87	1.06	35.72	1.09	33.81	1.06	28.98	0.98	23.00	0.86	17.12	0.72	12.56	0.59	10.05	0.50	9.67	0.46
	6.82	9.63	0.47	11.30	0.49	14.82	0.58	19.88	0.71	25.69	0.85	31.11	0.97	34.84	1.06	35.71	1.09	33.81	1.07	28.99	0.99	23.00	0.87	17.12	0.73	12.55	0.60	10.03	0.51	9.63	0.47
	7.03	9.63	0.46	11.29	0.48	14.81	0.56	19.88	0.69	25.72	0.83	31.18	0.95	34.94	1.04	35.83	1.07	33.93	1.05	29.09	0.97	23.08	0.86	17.17	0.73	12.58	0.60	10.04	0.50	9.63	0.46
	7.23	9.63	0.41	11.28	0.44	14.79	0.52	19.87	0.64	25.75	0.78	31.24	0.90	35.04	0.98	35.96	1.01	34.06	0.99	29.20	0.92	23.16	0.81	17.23	0.68	12.61	0.55	10.05	0.46	9.63	0.41
	7.45	9.52	0.35	11.13	0.38	14.59	0.46	19.59	0.57	25.37	0.69	30.77	0.81	34.50	0.89	35.41	0.92	33.55	0.89	28.78	0.81	22.85	0.70	17.01	0.57	12.47	0.46	9.94	0.38	9.52	0.35
	7.65	9.43	0.38	11.02	0.41	14.44	0.49	19.38	0.59	25.10	0.72	30.46	0.83	34.17	0.90	35.08	0.93	33.24	0.90	28.53	0.82	22.66	0.71	16.88	0.59	12.38	0.48	9.86	0.40	9.43	0.38
	7.85	9.34	0.40	10.90	0.43	14.28	0.51	19.17	0.62	24.84	0.74	30.16	0.85	33.84	0.92	34.76	0.94	32.94	0.92	28.29	0.84	22.48	0.73	16.75	0.61	12.28	0.50	9.78	0.43	9.34	0.40
	8.05	9.24	0.44	10.78	0.47	14.11	0.55	18.94	0.67	24.56	0.80	29.83	0.92	33.48	0.99	34.41	1.02	32.61	1.00	28.02	0.92	22.27	0.81	16.60	0.68	12.17	0.56	9.69	0.47	9.24	0.44
	8.26	9.15	0.45	10.65	0.47	13.94	0.56	18.71	0.68	24.27	0.82	29.48	0.94	33.11	1.02	34.03	1.05	32.26	1.02	27.73	0.95	22.05	0.83	16.44	0.70	12.06	0.57	9.60	0.48	9.14	0.45
	8.46	9.05	0.46	10.52	0.49	13.76	0.58	18.48	0.71	23.97	0.85	29.13	0.97	32.73	1.05	33.64	1.09	31.90	1.06	27.44	0.98	21.83	0.86	16.29	0.72	11.95	0.60	9.51	0.50	9.05	0.46
	8.66	8.94	0.47	10.39	0.49	13.58	0.58	18.23	0.72	23.65	0.86	28.75	0.99	32.32	1.07	33.23	1.11	31.52	1.08	27.12	1.00	21.58	0.87	16.11	0.74	11.83	0.61	9.41	0.51	8.94	0.47
	8.87	8.82	0.48	10.24	0.50	13.38	0.60	17.97	0.73	23.31	0.88	28.35	1.01	31.87	1.10	32.78	1.13	31.09	1.10	26.77	1.02	21.32	0.90	15.92	0.75	11.70	0.62	9.29	0.52	8.82	0.48
	9.07	8.70	0.48	10.09	0.51	13.17	0.60	17.69	0.74	22.96	0.89	27.93	1.02	31.41	1.12	32.31	1.15	30.66	1.12	26.41	1.04	21.04	0.91	15.73	0.76	11.55	0.63	9.18	0.52	8.70	0.48
	9.60	8.33	0.52	9.62	0.56	12.54	0.66	16.82	0.80	21.84	0.96	26.57	1.10	29.89	1.20	30.78	1.23	29.21	1.20	25.21	1.11	20.12	0.98	15.07	0.82	11.09	0.68	8.81	0.57	8.33	0.52
	9.80	8.19	0.54	9.45	0.57	12.30	0.68	16.51	0.83	21.44	0.99	26.09	1.13	29.37	1.23	30.25	1.27	28.72	1.24	24.80	1.14	19.81	1.01	14.84	0.85	10.93	0.70	8.67	0.59	8.19	0.54
	10.49	7.69	0.36	8.86	0.38	11.52	0.43	15.45	0.50	20.06	0.57	24.43	0.63	27.52	0.66	28.36	0.68	26.94	0.66	23.26	0.62	18.58	0.56	13.94	0.49	10.27	0.42	8.16	0.37	7.69	0.36
	11.22	7.14	0.42	8.20	0.44	10.65	0.53	14.29	0.65	18.58	0.77	22.66	0.87	25.57	0.95	26.38	0.97	25.06	0.95	21.66	0.88	17.30	0.77	12.98	0.65	9.58	0.54	7.59	0.45	7.14	0.42
	12.24	6.12	0.47	6.99	0.51	9.07	0.60	12.19	0.74	15.89	0.89	19.43	1.02	21.97	1.11	22.70	1.14	21.59	1.11	18.69	1.02	14.95	0.90	11.24	0.75	8.29	0.61	6.55	0.51	6.12	0.47
	12.75	5.40	0.51	6.15	0.55	7.97	0.66	10.71	0.82	13.97	0.99	17.10	1.14	19.35	1.24	20.02	1.28	19.04	1.24	16.51	1.15	13.23	1.00	9.95	0.83	7.35	0.68	5.80	0.56	5.40	0.51
	13.15	4.74	0.59	5.38	0.63	6.96	0.76	9.35	0.94	12.21	1.13	14.95	1.29	16.94	1.40	17.54	1.45	16.69	1.41	14.49	1.30	11.62	1.14	8.75	0.96	6.47	0.78	5.10	0.64	4.74	0.59
	13.61	4.43	0.50	5.03	0.53	6.57	0.62	8.98	0.75	11.90	0.88	14.76	0.99	16.86	1.06	17.54	1.09	16.67	1.06	14.42	0.99	11.47	0.88	8.54	0.75	6.23	0.63	4.83	0.54	4.43	0.50
	14.19	2.55	0.67	2.90	0.71	3.84	0.83	5.35	1.00	7.23	1.17	9.12	1.32	10.53	1.42	11.01	1.45	10.44	1.42	8.97	1.32	7.04	1.17	5.16	1.00	3.69	0.84	2.81	0.71	2.55	0.67
	14.58	1.27	0.50	1.47	0.54	2.09	0.66	3.17	0.82	4.61	0.99	6.11	1.14	7.26	1.24	7.70	1.28	7.26	1.24	6.11	1.14	4.61	1.00	3.18	0.82	2.11	0.66	1.47	0.54	1.27	0.50
Line #2	0.00	10.94	0.26	13.28	0.29	17.65	0.35	23.62	0.44	30.28	0.54	36.31	0.64	40.09	0.70	40.89	0.72	38.39	0.70	32.42	0.64	25.40	0.54	18.60	0.44	13.50	0.35	10.97	0.29	10.94	0.26
	0.50	10.76	0.35	13.05	0.37	17.33	0.44	23.18	0.55	29.72	0.66	35.66	0.76	39.41	0.83	40.19	0.85	37.74	0.83	31.89	0.76	25.00	0.66	18.32	0.55	13.30	0.45	10.80	0.38	10.76	0.35
	1.00	10.65	0.38	12.89	0.41	17.10	0.48	22.89	0.59	29.36	0.71	35.25	0.81	39.00	0.88	39.78	0.91	37.37	0.88	31.61	0.81	24.79	0.71	18.19	0.60	13.21	0.49	10.72	0.41	10.65	0.38
	1.50	10.57	0.39	12.76	0.42	16.92	0.49	22.65	0.60	29.08	0.72	34.94	0.83	38.69	0.90	39.48	0.93	37.11	0.90	31.42	0.83	24.66	0.73	18.12	0.61	13.17	0.50	10.67	0.43	10.57	0.39
	2.00	10.50	0.39	12.65	0.41	16.76	0.49	22.44	0.60	28.84	0.72	34.68	0.83	38.46	0.90	39.25	0.93	36.92	0.90	31.30	0.83	24.58	0.73	18.07	0.61	13.15	0.50	10.63	0.42	10.51	0.39
	2.50	10.44	0.39	12.55	0.41	16.61	0.48	22.25	0.59	28.61	0.71	34.44	0.82	38.24	0.90	39.04	0.92	36.75	0.90	31.19	0.83	24.52	0.73	18.04	0.61	13.13	0.50	10.60	0.42	10.44	0.39
	3.00	10.38	0.38	12.44	0.41	16.45	0.48	22.05	0.59	28.38	0.71	34.19	0.81	38.00	0.89	38.82	0.91	36.56	0.89	31.06	0.82	24.44	0.72	18.01	0.61	13.11	0.50	10.57	0.42	10.38	0.38
	3.50	10.31	0.39	12.32	0.41	16.29	0.48	21.83	0.59	28.12	0.71	33.90	0.82	37.73	0.90	38.55	0.92	36.33	0.90	30.90	0.83	24.34	0.73	17.95	0.61	13.08	0.51	10.53	0.42	10.31	0.39
	4.00	10.23	0.39	12.20	0.41	16.10	0.48	21.59	0.59	27.82	0.72	33.57	0.82	37.40	0.90	38.22	0.93	36.05	0.90	30.70	0.83	24.21	0.73	17.88	0.61	13.03	0.50	10.48	0.42	10.23	0.39
	4.50	10.14	0.40	12.05	0.43	15.89	0.50	21.31	0.61	27.47	0.74	33.17	0.85	36.99	0.93	37.81	0.96	35.69	0.93	30.43	0.86	24.02	0.75	17.77	0.63	12.97	0.52	10.42	0.44	10.14	0.40
	5.00	10.09	0.41	11.96	0.43	15.77	0.50	21.16	0.61	27.32	0.73	33.02	0.84	36.88	0.92	37.73	0.95	35.64	0.93	30.41	0.86	24.02	0.75	17.78	0.64	12.97	0.53	10.40	0.44	10.09	0.41
	5.50	10.05	0.40	11.88	0.42	15.65	0.49	21.02	0.60	27.17	0.72	32.88	0.83	36.75	0.91	37.65	0.93	35.57	0.91	30.40	0.84	24.03	0.74	17.80	0.63	12.99	0.52	10.39	0.44	10.05	0.40
	6.00	9.90	0.42	11.67	0.44	15.34	0.52	20.58	0.63	26.59	0.76	32.18	0.88	35.98	0.96	36.87	0.99	34.85	0.96	29.83	0.89	23.62	0.78	17.54	0.65	12.83	0.54	10.26	0.45	9.90	0.42
	6.51	9.67	0.46	11.36	0.49	14.91	0.57	19.97	0.70	25.78	0.85	31.18	0.97	34.87	1.06	35.72	1.09	33.81	1.06	28.98	0.98	23.00	0.86	17.12	0.72	12.56	0.59	10.05	0.50	9.67	0.46
	6.82	9.63	0.47	11.30	0.49	14.82	0.58	19.88	0.71	25.69	0.85	31.11	0.97	34.84	1.06	35.71	1.09	33.81	1.07	28.99	0.99	23.00	0.87	17.12	0.73	12.55	0.60	10.03	0.51	9.63	0.47
	7.03	9.63	0.46	11.29	0.48	14.81	0.56	19.88	0.69	25.72	0.83	31.18	0.95	34.94	1.04	35.83	1.07	33.93	1.05	29.09	0.97	23.08	0.86	17.17	0.73	12.58	0.60	10.04	0.50	9.63	0.46
	7.23	9.63	0.41	11.28	0.44	14.79	0.52	19.87	0.64	25.75	0.78	31.24	0.90	35.04	0.98	35.96	1.01	34.06	0.99	29.20	0.92	23.16	0.81	17.23	0.68	12.61	0.55	10.05	0.46	9.63	0.41
	7.45	9.52	0.35	11.13	0.38	14.59	0.46	19.59	0.57	25.37	0.69	30.77	0.81	34.50	0.89	35.41	0.92	33.55	0.89	28.78	0.81	22.85	0.70	17.01	0.57	12.47	0.46	9.94	0.38	9.52	0.35
	7.65	9.43	0.38	11.02	0.41	14.44	0.49	19.38	0.59	25.10	0.72	30.46	0.83	34.17	0.90	35.08	0.93	33.24	0.90	28.53	0.82	22.66	0.71	16.88	0.59	12.38	0.48	9.86	0.40	9.43	0.38
	7.85	9.34	0.40	10.90	0.43	14.28	0.51	19.17	0.62	24.84	0.74	30.16	0.85	33.84	0.92	34.76	0.94	32.94	0.92	28.29	0.84	22.48	0.73	16.75	0.61	12.28	0.50	9.78	0.43	9.34	0.40
	8.05	9.24	0.44	10.78	0.47	14.11	0.55	18.94	0.67	24.56	0.80	29.83	0.92	33.48	0.99	34.41	1.02	32.61	1.00	28.02	0.92	22.27	0.81	16.60	0.68	12.17	0.56	9.69	0.47	9.24	0.44
	8.26	9.15	0.45	10.65	0.47	13.94	0.56	18.71	0.68	24.27	0.82	29.48	0.94	33.11	1.02	34.03	1.05	32.26	1.02	27.73	0.95	22.05	0.83	16.44	0.70	12.06	0.57	9.60	0.48	9.14	0.45
	8.46	9.05	0.46	10.52	0.49	13.76	0.58	18.48	0.71	23.97	0.85	29.13	0.97	32.73	1.05	33.64	1.09	31.90	1.06	27.44	0.98	21.83	0.86	16.29	0.72	11.95	0.60	9.51	0.50	9.05	0.46
	8.66	8.94	0.47	10.39	0.49	13.58	0.58	18.23	0.72	23.65	0.86	28.75	0.99	32.32	1.07	33.23	1.11	31.52	1.08	27.12	1.00	21.58	0.87	16.11	0.74	11.83	0.61	9.41	0.51	8.94	0.47
	8.87	8.82	0.48	10.24	0.50	13.38	0.60	17.97	0.73	23.31	0.88	28.35	1.01	31.87	1.10	32.78	1.13	31.09	1.10	26.77	1.02	21.32	0.90	15.92	0.75	11.70	0.62	9.29	0.52	8.82	0.48
	9.07	8.70	0.48	10.09	0.51	13.17	0.60	17.69	0.74	22.96	0.89	27.93	1.02	31.41	1.12	32.31	1.15	30.66	1.12	26.41	1.04	21.04	0.91	15.73	0.76	11.55	0.63	9.18	0.52	8.70	0.48
	9.60	8.33	0.52	9.62	0.56	12.54	0.66	16.82	0.80	21.84	0.96	26.57	1.10	29.89	1.20	30.78	1.23	29.21	1.20	25.21	1.11	20.12	0.98	15.07	0.82	11.09	0.68	8.81	0.57	8.33	0.52
	9.80	8.19	0.54	9.45	0.57	12.30	0.68	16.51	0.83	21.44	0.99	26.09	1.13	29.37	1.23	30.25	1.27	28.72	1.24	24.80	1.14	19.81	1.01	14.84	0.85	10.93	0.70	8.67	0.59	8.19	0.54
	10.12	8.33	0.43	9.59	0.45	12.53	0.55	16.91	0.67	22.09	0.81	27.03	0.93	30.55	1.02	31.54	1.05	29.95	1.02	25.84	0.95	20.58	0.84	15.36	0.70	11.25	0.57	8.87	0.47	8.33	0.43
	10.65	8.22	0.36	9.44	0.39	12.33	0.46	16.68	0.57	21.84	0.69	26.79	0.79	30.31	0.86	31.35	0.89	29.78	0.87	25.72	0.80	20.49	0.69	15.30	0.58	11.20	0.47	8.80	0.39	8.22	0.36
	11.19	7.83	0.42	8.96	0.44	11.69	0.53	15.83	0.65	20.74	0.79	25.46	0.90	28.85	0.98	29.86	1.01	28.39	0.99	24.55	0.91	19.58	0.80	14.64	0.67	10.72	0.55	8.41	0.45	7.83	0.42
	11.76	7.19	0.49	8.20	0.52	10.67	0.63	14.42	0.77	18.90	0.93	23.20	1.07	26.29	1.16	27.22	1.20	25.89	1.17	22.44	1.08	17.94	0.94	13.44	0.79	9.87	0.64	7.74	0.53	7.19	0.49
	12.35	6.18	0.61	7.02	0.65	9.09	0.78	12.23	0.95	15.97	1.14	19.55	1.31	22.13	1.43	22.92	1.47	21.81	1.43	18.97	1.32	15.24	1.16	11.48	0.97	8.48	0.80	6.67	0.66	6.18	0.61
	12.96	5.54	0.52	6.26	0.55	8.15	0.67	11.06	0.83	14.57	1.02	17.99	1.18	20.49	1.29	21.30	1.33	20.29	1.29	17.61	1.19	14.08	1.03	10.56	0.85	7.74	0.69	6.03	0.57	5.54	0.52
	13.66	2.89	0.78	3.25	0.82	4.20	0.98	5.64	1.20	7.36	1.43	9.03	1.64	10.23	1.78	10.62	1.83	10.13	1.78	8.84	1.65	7.13	1.45	5.40	1.22	4.00	1.00	3.14	0.84	2.89	0.77
	14.16	0.06	0.90	0.07	0.96	0.09	1.14	0.12	1.39	0.15	1.66	0.18	1.90	0.19	2.06	0.20	2.12	0.19	2.07	0.18	1.91	0.15	1.68	0.12	1.41	0.09	1.16	0.07	0.97	0.06	0.90
	0.00	10.94	0.26	13.28	0.29	17.65	0.35	23.62	0.44	30.28	0.54	36.31	0.64	40.09	0.70	40.89	0.72	38.39	0.70	32.42	0.64	25.40	0.54	18.60	0.44	13.50	0.35	10.97	0.29	10.94	0.26
	0.50	10.76	0.35	13.05	0.37	17.33	0.44	23.18	0.55	29.72	0.66	35.66	0.76	39.41	0.83	40.19	0.85	37.74	0.83	31.89	0.76	25.00	0.66	18.32	0.55	13.30	0.45	10.80	0.38	10.76	0.35
	1.00	10.65	0.38	12.89	0.41	17.10	0.48	22.89	0.59	29.36	0.71	35.25	0.81	39.00	0.88	39.78	0.91	37.37	0.88	31.61	0.81	24.79	0.71	18.19	0.60	13.21	0.49	10.72	0.41	10.65	0.38
	1.50	10.57	0.39	12.76	0.42	16.92	0.49	22.65	0.60	29.08	0.72	34.94	0.83	38.69	0.90	39.48	0.93	37.11	0.90	31.42	0.83	24.66	0.73	18.12	0.61	13.17	0.50	10.67	0.43	10.57	0.39
	2.00	10.50	0.39	12.65	0.41	16.76	0.49	22.44	0.60	28.84	0.72	34.68	0.83	38.46	0.90	39.25	0.93	36.92	0.90	31.30	0.83	24.58	0.73	18.07	0.61	13.15	0.50	10.63	0.42	10.51	0.39
	2.50	10.44	0.39	12.55	0.41	16.61	0.48	22.25	0.59	28.61	0.71	34.44	0.82	38.24	0.90	39.04	0.92	36.75	0.90	31.19	0.83	24.52	0.73	18.04	0.61	13.13	0.50	10.60	0.42	10.44	0.39
	3.00	10.38	0.38	12.44	0.41	16.45	0.48	22.05	0.59	28.38	0.71	34.19	0.81	38.00	0.89	38.82	0.91	36.56	0.89	31.06	0.82	24.44	0.72	18.01	0.61	13.11	0.50	10.57	0.42	10.38	0.38

	3.50	10.31	0.39	12.32	0.41	16.29	0.48	21.83	0.59	28.12	0.71	33.90	0.82	37.73	0.90	38.55	0.92	36.33	0.90	30.90	0.83	24.34	0.73	17.95	0.61	13.08	0.51	10.53	0.42	10.31	0.39
	4.00	10.23	0.39	12.20	0.41	16.10	0.48	21.59	0.59	27.82	0.72	33.57	0.82	37.40	0.90	38.22	0.93	36.05	0.90	30.70	0.83	24.21	0.73	17.88	0.61	13.03	0.50	10.48	0.42	10.23	0.39
	4.50	10.14	0.40	12.05	0.43	15.89	0.50	21.31	0.61	27.47	0.74	33.17	0.85	36.99	0.93	37.81	0.96	35.69	0.93	30.43	0.86	24.02	0.75	17.77	0.63	12.97	0.52	10.42	0.44	10.14	0.40
	5.00	10.09	0.41	11.96	0.43	15.77	0.50	21.16	0.61	27.32	0.73	33.02	0.84	36.88	0.92	37.73	0.95	35.64	0.93	30.41	0.86	24.02	0.75	17.78	0.64	12.97	0.53	10.40	0.44	10.09	0.41
	5.50	10.05	0.40	11.88	0.42	15.65	0.49	21.02	0.60	27.17	0.72	32.88	0.83	36.75	0.91	37.65	0.93	35.57	0.91	30.40	0.84	24.03	0.74	17.80	0.63	12.99	0.52	10.39	0.44	10.05	0.40
	6.00	9.90	0.42	11.67	0.44	15.34	0.52	20.58	0.63	26.59	0.76	32.18	0.88	35.98	0.96	36.87	0.99	34.85	0.96	29.83	0.89	23.62	0.78	17.54	0.65	12.83	0.54	10.26	0.45	9.90	0.42
	6.51	9.67	0.46	11.36	0.49	14.91	0.57	19.97	0.70	25.78	0.85	31.18	0.97	34.87	1.06	35.72	1.09	33.81	1.06	28.98	0.98	23.00	0.86	17.12	0.72	12.56	0.59	10.05	0.50	9.67	0.46
	6.82	9.63	0.47	11.30	0.49	14.82	0.58	19.88	0.71	25.69	0.85	31.11	0.97	34.84	1.06	35.71	1.09	33.81	1.07	28.99	0.99	23.00	0.87	17.12	0.73	12.55	0.60	10.03	0.51	9.63	0.47
	7.02	9.66	0.44	11.32	0.46	14.86	0.54	19.95	0.67	25.83	0.80	31.31	0.92	35.10	1.00	36.00	1.03	34.09	1.00	29.22	0.93	23.18	0.82	17.24	0.69	12.63	0.57	10.07	0.48	9.66	0.44
Line #3	7.24	9.68	0.36	11.34	0.39	14.89	0.47	20.01	0.58	25.94	0.70	31.48	0.80	35.32	0.88	36.25	0.91	34.33	0.88	29.43	0.81	23.33	0.71	17.34	0.59	12.69	0.48	10.11	0.40	9.68	0.36
	7.47	9.59	0.34	11.23	0.36	14.73	0.44	19.79	0.55	25.64	0.67	31.11	0.78	34.89	0.85	35.81	0.88	33.92	0.85	29.09	0.78	23.08	0.68	17.17	0.55	12.58	0.44	10.02	0.37	9.59	0.34
	7.70	9.49	0.32	11.09	0.35	14.54	0.42	19.51	0.51	25.27	0.61	30.66	0.71	34.38	0.77	35.31	0.79	33.44	0.76	28.71	0.69	22.80	0.60	16.99	0.49	12.45	0.40	9.92	0.33	9.49	0.32
	7.94	9.35	0.36	10.92	0.39	14.30	0.46	19.18	0.56	24.83	0.67	30.12	0.76	33.78	0.83	34.69	0.85	32.86	0.82	28.24	0.75	22.45	0.65	16.74	0.54	12.29	0.44	9.79	0.38	9.35	0.36
	8.17	9.19	0.41	10.71	0.44	14.01	0.52	18.79	0.64	24.31	0.77	29.47	0.88	33.05	0.95	33.94	0.98	32.16	0.95	27.66	0.87	22.01	0.76	16.44	0.63	12.08	0.52	9.63	0.44	9.19	0.41
	8.40	9.02	0.46	10.50	0.49	13.71	0.58	18.36	0.72	23.74	0.86	28.77	0.99	32.26	1.08	33.12	1.11	31.39	1.08	27.03	0.99	21.53	0.87	16.10	0.72	11.85	0.59	9.45	0.50	9.01	0.46
	8.68	8.76	0.49	10.18	0.53	13.27	0.63	17.74	0.77	22.90	0.92	27.72	1.05	31.06	1.14	31.89	1.18	30.24	1.14	26.07	1.05	20.81	0.92	15.60	0.77	11.50	0.63	9.19	0.53	8.76	0.49
	8.96	8.59	0.48	9.96	0.52	12.99	0.62	17.36	0.76	22.41	0.91	27.14	1.04	30.44	1.13	31.26	1.16	29.66	1.13	25.58	1.04	20.42	0.91	15.32	0.76	11.30	0.62	9.02	0.52	8.59	0.48
	9.25	8.67	0.31	10.05	0.34	13.12	0.42	17.59	0.53	22.78	0.65	27.66	0.75	31.07	0.82	31.94	0.84	30.30	0.81	26.11	0.74	20.82	0.63	15.59	0.51	11.48	0.41	9.13	0.34	8.67	0.31
	9.57	8.61	0.24	9.97	0.27	13.02	0.32	17.47	0.38	22.64	0.44	27.50	0.50	30.91	0.54	31.80	0.55	30.16	0.53	26.00	0.48	20.74	0.41	15.53	0.35	11.43	0.29	9.09	0.25	8.61	0.24
	10.39	8.19	0.37	9.45	0.40	12.32	0.48	16.55	0.59	21.48	0.72	26.15	0.83	29.45	0.91	30.33	0.93	28.79	0.91	24.86	0.84	19.84	0.73	14.87	0.61	10.95	0.49	8.68	0.40	8.19	0.37
	11.25	7.41	0.45	8.51	0.49	11.06	0.59	14.82	0.72	19.22	0.87	23.38	1.00	26.34	1.09	27.15	1.13	25.79	1.09	22.34	1.01	17.89	0.88	13.46	0.73	9.94	0.59	7.88	0.49	7.41	0.45
	11.92	6.22	0.61	7.09	0.66	9.15	0.79	12.17	0.97	15.68	1.16	18.98	1.33	21.32	1.44	21.96	1.48	20.89	1.44	18.18	1.33	14.66	1.16	11.13	0.97	8.30	0.79	6.62	0.66	6.22	0.61
	12.50	5.55	0.46	6.32	0.49	8.17	0.58	10.92	0.70	14.16	0.82	17.23	0.92	19.42	1.00	20.07	1.02	19.09	0.99	16.61	0.91	13.37	0.80	10.12	0.68	7.51	0.57	5.95	0.49	5.55	0.46
	13.04	2.93	0.63	3.31	0.68	4.16	0.83	5.36	1.04	6.69	1.26	7.89	1.46	8.71	1.60	8.91	1.64	8.52	1.59	7.54	1.46	6.25	1.26	4.91	1.03	3.79	0.83	3.10	0.68	2.93	0.63
	13.56	0.27	0.74	0.29	0.80	0.33	0.97	0.36	1.20	0.35	1.45	0.32	1.66	0.27	1.81	0.24	1.86	0.24	1.81	0.27	1.66	0.29	1.44	0.29	1.19	0.27	0.96	0.26	0.80	0.27	0.74
	13.66	0.00	0.55	0.00	0.60	0.00	0.74	-0.01	0.93	-0.03	1.13	-0.04	1.32	-0.05	1.44	-0.06	1.48	-0.06	1.44	-0.05	1.31	-0.03	1.13	-0.02	0.92	-0.01	0.73	0.00	8 0.60096258	0.00	0.55
	0.00	10.94	0.26	13.28	0.29	17.65	0.35	23.62	0.44	30.28	0.54	36.31	0.64	40.09	0.70	40.89	0.72	38.39	0.70	32.42	0.64	25.40	0.54	18.60	0.44	13.50	0.35	10.97	0.29	10.94	0.26
	0.50	10.76	0.35	13.05	0.37	17.33	0.44	23.18	0.55	29.72	0.66	35.66	0.76	39.41	0.83	40.19	0.85	37.74	0.83	31.89	0.76	25.00	0.66	18.32	0.55	13.30	0.45	10.80	0.38	10.76	0.35
	1.00	10.65	0.38	12.89	0.41	17.10	0.48	22.89	0.59	29.36	0.71	35.25	0.81	39.00	0.88	39.78	0.91	37.37	0.88	31.61	0.81	24.79	0.71	18.19	0.60	13.21	0.49	10.72	0.41	10.65	0.38
	1.50	10.57	0.39	12.76	0.42	16.92	0.49	22.65	0.60	29.08	0.72	34.94	0.83	38.69	0.90	39.48	0.93	37.11	0.90	31.42	0.83	24.66	0.73	18.12	0.61	13.17	0.50	10.67	0.43	10.57	0.39
	2.00	10.50	0.39	12.65	0.41	16.76	0.49	22.44	0.60	28.84	0.72	34.68	0.83	38.46	0.90	39.25	0.93	36.92	0.90	31.30	0.83	24.58	0.73	18.07	0.61	13.15	0.50	10.63	0.42	10.51	0.39
	2.50	10.44	0.39	12.55	0.41	16.61	0.48	22.25	0.59	28.61	0.71	34.44	0.82	38.24	0.90	39.04	0.92	36.75	0.90	31.19	0.83	24.52	0.73	18.04	0.61	13.13	0.50	10.60	0.42	10.44	0.39
	3.00	10.38	0.38	12.44	0.41	16.45	0.48	22.05	0.59	28.38	0.71	34.19	0.81	38.00	0.89	38.82	0.91	36.56	0.89	31.06	0.82	24.44	0.72	18.01	0.61	13.11	0.50	10.57	0.42	10.38	0.38
	3.50	10.31	0.39	12.32	0.41	16.29	0.48	21.83	0.59	28.12	0.71	33.90	0.82	37.73	0.90	38.55	0.92	36.33	0.90	30.90	0.83	24.34	0.73	17.95	0.61	13.08	0.51	10.53	0.42	10.31	0.39
	4.00	10.23	0.39	12.20	0.41	16.10	0.48	21.59	0.59	27.82	0.72	33.57	0.82	37.40	0.90	38.22	0.93	36.05	0.90	30.70	0.83	24.21	0.73	17.88	0.61	13.03	0.50	10.48	0.42	10.23	0.39
	4.50	10.14	0.40	12.05	0.43	15.89	0.50	21.31	0.61	27.47	0.74	33.17	0.85	36.99	0.93	37.81	0.96	35.69	0.93	30.43	0.86	24.02	0.75	17.77	0.63	12.97	0.52	10.42	0.44	10.14	0.40
	5.00	10.09	0.41	11.96	0.43	15.77	0.50	21.16	0.61	27.32	0.73	33.02	0.84	36.88	0.92	37.73	0.95	35.64	0.93	30.41	0.86	24.02	0.75	17.78	0.64	12.97	0.53	10.40	0.44	10.09	0.41
	5.50	10.05	0.40	11.88	0.42	15.65	0.49	21.02	0.60	27.17	0.72	32.88	0.83	36.75	0.91	37.65	0.93	35.57	0.91	30.40	0.84	24.03	0.74	17.80	0.63	12.99	0.52	10.39	0.44	10.05	0.40
	6.00	9.90	0.42	11.67	0.44	15.34	0.52	20.58	0.63	26.59	0.76	32.18	0.88	35.98	0.96	36.87	0.99	34.85	0.96	29.83	0.89	23.62	0.78	17.54	0.65	12.83	0.54	10.26	0.45	9.90	0.42
	6.51	9.67	0.46	11.36	0.49	14.91	0.57	19.97	0.70	25.78	0.85	31.18	0.97	34.87	1.06	35.72	1.09	33.81	1.06	28.98	0.98	23.00	0.86	17.12	0.72	12.56	0.59	10.05	0.50	9.67	0.46
	6.82	9.63	0.47	11.30	0.49	14.82	0.58	19.88	0.71	25.69	0.85	31.11	0.97	34.84	1.06	35.71	1.09	33.81	1.07	28.99	0.99	23.00	0.87	17.12	0.73	12.55	0.60	10.03	0.51	9.63	0.47
	7.02	9.66	0.44	11.32	0.46	14.86	0.54	19.95	0.67	25.83	0.80	31.31	0.92	35.10	1.00	36.00	1.03	34.09	1.00	29.22	0.93	23.18	0.82	17.24	0.69	12.63	0.57	10.07	0.48	9.66	0.44
	7.24	9.68	0.36	11.34	0.39	14.89	0.47	20.01	0.58	25.94	0.70	31.48	0.80	35.32	0.88	36.25	0.91	34.33	0.88	29.43	0.81	23.33	0.71	17.34	0.59	12.69	0.48	10.11	0.40	9.68	0.36
Line #4	7.47	9.59	0.34	11.23	0.36	14.73	0.44	19.79	0.55	25.64	0.67	31.11	0.78	34.89	0.85	35.81	0.88	33.92	0.85	29.09	0.78	23.08	0.68	17.17	0.55	12.58	0.44	10.02	0.37	9.59	0.34
	7.70	9.49	0.32	11.09	0.35	14.54	0.42	19.51	0.51	25.27	0.61	30.66	0.71	34.38	0.77	35.31	0.79	33.44	0.76	28.71	0.69	22.80	0.60	16.99	0.49	12.45	0.40	9.92	0.33	9.49	0.32
	7.94	9.35	0.36	10.92	0.39	14.30	0.46	19.18	0.56	24.83	0.67	30.12	0.76	33.78	0.83	34.69	0.85	32.86	0.82	28.24	0.75	22.45	0.65	16.74	0.54	12.29	0.44	9.79	0.38	9.35	0.36
	8.17	9.19	0.41	10.71	0.44	14.01	0.52	18.79	0.64	24.31	0.77	29.47	0.88	33.05	0.95	33.94	0.98	32.16	0.95	27.66	0.87	22.01	0.76	16.44	0.63	12.08	0.52	9.63	0.44	9.19	0.41
	8.40	9.02	0.46	10.50	0.49	13.71	0.58	18.36	0.72	23.74	0.86	28.77	0.99	32.26	1.08	33.12	1.11	31.39	1.08	27.03	0.99	21.53	0.87	16.10	0.72	11.85	0.59	9.45	0.50	9.01	0.46
	8.68	8.76	0.49	10.18	0.53	13.27	0.63	17.74	0.77	22.90	0.92	27.72	1.05	31.06	1.14	31.89	1.18	30.24	1.14	26.07	1.05	20.81	0.92	15.60	0.77	11.50	0.63	9.19	0.53	8.76	0.49
	8.96	8.59	0.48	9.96	0.52	12.99	0.62	17.36	0.76	22.41	0.91	27.14	1.04	30.44	1.13	31.26	1.16	29.66	1.13	25.58	1.04	20.42	0.91	15.32	0.76	11.30	0.62	9.02	0.52	8.59	0.48
	9.19	8.45	0.06	9.80	0.07	12.76	0.08	17.02	0.08	21.92	0.07	26.49	0.05	29.67	0.03	30.44	0.02	28.89	0.02	24.93	0.03	19.95	0.04	15.00	0.05	11.10	0.06	8.87	0.06	8.45	0.06
	9.43	8.42	0.34	9.75	0.37	12.71	0.44	16.99	0.54	21.95	0.65	26.58	0.75	29.82	0.82	30.63	0.85	29.06	0.82	25.07	0.74	20.03	0.64	15.03	0.52	11.10	0.43	8.86	0.36	8.42	0.34
	9.93	7.96	0.42	9.19	0.46	11.97	0.54	16.02	0.64	20.75	0.75	25.20	0.84	28.32	0.91	29.15	0.93	27.66	0.90	23.86	0.83	19.05	0.73	14.29	0.62	10.54	0.52	8.39	0.45	7.95	0.42
	10.43	7.41	0.42	8.55	0.45	11.11	0.54	14.86	0.67	19.23	0.81	23.35	0.92	26.25	1.01	27.02	1.03	25.65	1.00	22.17	0.92	17.73	0.80	13.32	0.66	9.84	0.54	7.84	0.45	7.41	0.42
	10.94	6.77	0.50	7.78	0.54	10.10	0.65	13.49	0.81	17.45	0.98	21.19	1.12	23.83	1.23	24.54	1.26	23.31	1.23	20.18	1.13	16.17	0.98	12.17	0.81	9.01	0.66	7.17	0.55	6.76	0.50
	11.44	5.95	0.56	6.82	0.60	8.83	0.73	11.78	0.90	15.22	1.08	18.47	1.25	20.76	1.36	21.39	1.40	20.33	1.36	17.64	1.25	14.17	1.09	10.70	0.90	7.94	0.73	6.32	0.61	5.95	0.56
	11.94	5.19	0.49	5.92	0.53	7.66	0.64	10.25	0.80	13.28	0.98	16.17	1.14	18.23	1.24	18.83	1.28	17.90	1.25	15.53	1.14	12.47	0.98	9.41	0.81	6.98	0.64	5.54	0.53	5.19	0.49
	12.45	4.84	0.42	5.52	0.45	7.20	0.53	9.74	0.62	12.78	0.72	15.70	0.81	17.81	0.87	18.46	0.89	17.54	0.86	15.20	0.80	12.14	0.71	9.09	0.61	6.67	0.51	5.23	0.45	4.84	0.42
	12.96	3.62	0.60	4.12	0.64	5.38	0.77	7.31	0.94	9.63	1.13	11.88	1.30	13.52	1.41	14.04	1.45	13.35	1.41	11.56	1.30	9.21	1.14	6.88	0.96	5.04	0.78	3.93	0.65	3.62	0.60
	13.52	1.25	0.77	1.42	0.83	1.85	0.99	2.51	1.21	3.30	1.44	4.07	1.64	4.64	1.78	4.82	1.83	4.58	1.78	3.97	1.64	3.17	1.44	2.38	1.21	1.74	0.99	1.36	0.83	1.25	0.77
	13.63	0.60	0.82	0.69	0.88	0.89	1.05	1.21	1.28	1.59	1.52	1.97	1.74	2.24	1.88	2.33	1.93	2.21	1.88	1.92	1.74	1.53	1.53	1.15	1.28	0.84	1.06	0.66	0.89	0.60	0.82
	0.00	10.94	0.26	13.28	0.29	17.65	0.35	23.62	0.44	30.28	0.54	36.31	0.64	40.09	0.70	40.89	0.72	38.39	0.70	32.42	0.64	25.40	0.54	18.60	0.44	13.50	0.35	10.97	0.29	10.94	0.26
	0.50	10.76	0.35	13.05	0.37	17.33	0.44	23.18	0.55	29.72	0.66	35.66	0.76	39.41	0.83	40.19	0.85	37.74	0.83	31.89	0.76	25.00	0.66	18.32	0.55	13.30	0.45	10.80	0.38	10.76	0.35
	1.00	10.65	0.38	12.89	0.41	17.10	0.48	22.89	0.59	29.36	0.71	35.25	0.81	39.00	0.88	39.78	0.91	37.37	0.88	31.61	0.81	24.79	0.71	18.19	0.60	13.21	0.49	10.72	0.41	10.65	0.38
	1.50	10.57	0.39	12.76	0.42	16.92	0.49	22.65	0.60	29.08	0.72	34.94	0.83	38.69	0.90	39.48	0.93	37.11	0.90	31.42	0.83	24.66	0.73	18.12	0.61	13.17	0.50	10.67	0.43	10.57	0.39
	2.00	10.50	0.39	12.65	0.41	16.76	0.49	22.44	0.60	28.84	0.72	34.68	0.83	38.46	0.90	39.25	0.93	36.92	0.90	31.30	0.83	24.58	0.73	18.07	0.61	13.15	0.50	10.63	0.42	10.51	0.39
	2.50	10.44	0.39	12.55	0.41	16.61	0.48	22.25	0.59	28.61	0.71	34.44	0.82	38.24	0.90	39.04	0.92	36.75	0.90	31.19	0.83	24.52	0.73	18.04	0.61	13.13	0.50	10.60	0.42	10.44	0.39
	3.00	10.38	0.38	12.44	0.41	16.45	0.48	22.05	0.59	28.38	0.71	34.19	0.81	38.00	0.89	38.82	0.91	36.56	0.89	31.06	0.82	24.44	0.72	18.01	0.61	13.11	0.50	10.57	0.42	10.38	0.38
	3.50	10.31	0.39	12.32	0.41	16.29	0.48	21.83	0.59	28.12	0.71	33.90	0.82	37.73	0.90	38.55	0.92	36.33	0.90	30.90	0.83	24.34	0.73	17.95	0.61	13.08	0.51	10.53	0.42	10.31	0.39
	4.00	10.23	0.39	12.20	0.41	16.10	0.48	21.59	0.59	27.82	0.72	33.57	0.82	37.40	0.90	38.22	0.93	36.05	0.90	30.70	0.83	24.21	0.73	17.88	0.61	13.03	0.50	10.48	0.42	10.23	0.39
	4.50	10.14	0.40	12.05	0.43	15.89	0.50	21.31	0.61	27.47	0.74	33.17	0.85	36.99	0.93	37.81	0.96	35.69	0.93	30.43	0.86	24.02	0.75	17.77	0.63	12.97	0.52	10.42	0.44	10.14	0.40
Line #5	5.00	10.09	0.41	11.96	0.43	15.77	0.50	21.16	0.61	27.32	0.73	33.02	0.84	36.88	0.92	37.73	0.95	35.64	0.93	30.41	0.86	24.02	0.75	17.78	0.64	12.97	0.53	10.40	0.44	10.09	0.41
	5.56	9.95	0.17	11.79	0.18	15.53	0.21	20.80	0.23	26.80	0.24	32.34	0.24	36.05	0.23	36.86	0.23	34.82	0.22	29.74	0.22	23.53	0.21	17.44	0.19	12.76	0.18	10.25	0.17	9.95	0.17
	5.85	9.87	0.24	11.68	0.26	15.38	0.32	20.61	0.38	26.59	0.45	32.12	0.50	35.83	0.53	36.68	0.54	34.64	0.52	29.59	0.49	23.39	0.43	17.34	0.37	12.68	0.31	10.17	0.26	9.87	0.24
	6.36	9.62	0.30	11.38	0.32	14.96	0.39	20.03	0.48	25.82	0.58	31.19	0.67	34.77	0.73	35.62	0.75	33.61	0.72	28.77	0.66	22.77	0.58	16.90	0.48	12.38	0.39	9.93	0.32	9.62	0.30
	7.12	8.95	0.35	10.55	0.39	13.82	0.48	18.44	0.61	23.71	0.75	28.58	0.87	31.76	0.95	32.60	0.98	30.71	0.94	26.40	0.86	20.96	0.73	15.63	0.59	11.49	0.47	9.24	0.38	8.95	0.35
	7.96	7.70	0.48	9.04	0.52	11.78	0.64	15.62	0.81	19.98	0.98	23.99	1.13	26.47	1.24	27.29	1.28	25.60	1.23	22.17	1.12	17.69	0.96	13.28	0.79	9.84	0.62	7.95	0.51	7.70	0.48
	8.67	6.77	0.56	7.93	0.61	10.33	0.74	13.73	0.92	17.61	1.10	21.21	1.26	23.32	1.37	24.24	1.41	22.61	1.36	19.68	1.25	15.71	1.09	11.79	0.90	8.72	0.73	7.03	0.60	6.77	0.56
	9.17	6.24	0.48	7.29	0.52	9.53	0.64	12.71	0.80	16.37	0.96	19.81	1.11	21.80	1.21	22.75	1.24	21.20	1.20	18.47	1.10	14.72	0.95	11.03	0.78	8.14	0.62	6.52	0.51	6.24	0.48
	9.68	5.61	0.46	6.52	0.51	8.52	0.63	11.37	0.78	14.68	0.95	17.78	1.10	19.62	1.20	20.43	1.23	19.15	1.19	16.68	1.09	13.31	0.94	9.98	0.76	7.36	0.61	5.88	0.50	5.60	0.46
	10.18	4.87	0.30	5.64	0.33	7.35	0.41	9.80	0.53	12.65	0.66	15.33	0.77	16.85	0.86	17.63	0.88	16.53	0.85	14.45	0.76	11.56	0.64	8.69	0.51	6.43	0.39	5.13	0.32	4.87	0.30
	10.69	3.35	0.39	3.87	0.43	5.01	0.54	6.65	0.71	8.55	0.90	10.32	1.07	11.41	1.20	11.78	1.28	11.22	1.18	9.75	1.06	7.84	0.88	5.92	0.69	4.40	0.52	3.53	0.42	3.35	0.39
	11.24	1.12	0.06	1.28	0.07	1.65	0.09	2.14	0.12	2.74	0.15	3.32	0.18	3.43	0.20	3.60	0.20	3.34	0.20	3.07	0.18	2.48	0.15	1.89	0.11	1.45	0.09	1.17	0.07	1.12	0.06

RAA - Simulation - Raw Data

Table A7.4: RAA1 - Finer Resolution

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
Line #1	0.00	10.86	0.26	13.28	0.29	17.85	0.35	24.05	0.45	30.97	0.56	37.21	0.65	41.24	0.72	41.95	0.74	39.02	0.72	33.17	0.65	25.81	0.56	18.74	0.45	13.52	0.35	10.85	0.29	10.83	0.26
	0.50	10.69	0.34	13.05	0.37	17.53	0.44	23.62	0.55	30.42	0.67	36.56	0.77	40.55	0.84	41.26	0.87	38.40	0.84	32.66	0.77	25.43	0.67	18.48	0.55	13.34	0.45	10.70	0.37	10.66	0.35
	1.00	10.58	0.37	12.89	0.40	17.31	0.48	23.32	0.59	30.06	0.71	36.16	0.81	40.14	0.89	40.87	0.91	38.07	0.89	32.40	0.82	25.24	0.71	18.35	0.59	13.26	0.48	10.62	0.40	10.56	0.37
	1.50	10.50	0.38	12.77	0.41	17.12	0.48	23.09	0.60	29.78	0.72	35.86	0.83	39.85	0.90	40.61	0.93	37.85	0.90	32.24	0.83	25.14	0.73	18.29	0.61	13.22	0.50	10.58	0.41	10.48	0.38
	2.00	10.43	0.39	12.65	0.41	16.96	0.48	22.87	0.60	29.53	0.72	35.60	0.83	39.59	0.90	40.39	0.93	37.67	0.91	32.11	0.84	25.05	0.73	18.25	0.61	13.19	0.50	10.54	0.42	10.41	0.39
	2.50	10.38	0.40	12.56	0.42	16.82	0.49	22.70	0.60	29.33	0.73	35.39	0.84	39.39	0.92	40.21	0.95	37.53	0.92	32.01	0.85	25.00	0.75	18.22	0.63	13.17	0.52	10.52	0.44	10.36	0.40
	3.00	10.37	0.39	12.54	0.40	16.79	0.46	22.65	0.58	29.28	0.70	35.34	0.82	39.35	0.90	40.17	0.93	37.50	0.92	32.00	0.85	25.00	0.75	18.23	0.64	13.18	0.53	10.51	0.44	10.35	0.39
	3.50	10.35	0.39	12.49	0.38	16.70	0.44	22.54	0.56	29.15	0.69	35.20	0.81	39.21	0.89	40.06	0.93	37.42	0.91	31.94	0.85	24.97	0.75	18.22	0.64	13.18	0.53	10.51	0.44	10.32	0.39
	4.00	10.24	0.41	12.30	0.42	16.41	0.49	22.14	0.61	28.66	0.75	34.65	0.87	38.64	0.95	39.53	0.98	36.98	0.96	31.63	0.89	24.79	0.79	18.13	0.67	13.13	0.55	10.45	0.46	10.22	0.41
	4.50	10.14	0.42	12.14	0.44	16.18	0.51	21.84	0.63	28.28	0.77	34.21	0.89	38.19	0.98	39.09	1.01	36.61	0.99	31.35	0.92	24.60	0.81	18.03	0.68	13.07	0.56	10.39	0.47	10.12	0.43
	5.00	10.11	0.41	12.06	0.43	16.06	0.50	21.70	0.61	28.14	0.75	34.10	0.87	38.11	0.95	39.06	0.98	36.61	0.96	31.38	0.89	24.65	0.78	18.07	0.66	13.10	0.54	10.40	0.45	10.09	0.41
	5.50	10.07	0.39	11.98	0.41	15.94	0.48	21.54	0.59	27.98	0.71	33.95	0.83	37.98	0.91	38.97	0.94	36.56	0.91	31.37	0.85	24.67	0.74	18.11	0.62	13.13	0.51	10.40	0.43	10.05	0.39
	6.00	9.92	0.40	11.76	0.42	15.61	0.50	21.08	0.62	27.36	0.76	33.20	0.87	37.15	0.96	38.13	0.99	35.81	0.96	30.77	0.89	24.26	0.77	17.85	0.64	12.97	0.52	10.27	0.44	9.90	0.40
	6.51	9.70	0.44	11.46	0.47	15.18	0.56	20.47	0.69	26.56	0.84	32.20	0.97	36.04	1.05	37.00	1.09	34.78	1.06	29.94	0.98	23.65	0.85	17.46	0.71	12.71	0.58	10.07	0.48	9.68	0.44
	6.82	9.66	0.45	11.40	0.48	15.10	0.56	20.38	0.69	26.49	0.84	32.17	0.96	36.04	1.05	37.04	1.08	34.83	1.06	29.98	0.98	23.68	0.86	17.47	0.72	12.71	0.59	10.05	0.49	9.65	0.45
	7.03	9.66	0.44	11.39	0.46	15.09	0.54	20.38	0.67	26.52	0.81	32.24	0.93	36.16	1.02	37.18	1.05	34.97	1.03	30.10	0.95	23.76	0.84	17.52	0.70	12.74	0.58	10.07	0.48	9.64	0.44
	7.23	9.65	0.40	11.37	0.42	15.06	0.50	20.36	0.62	26.52	0.76	32.28	0.88	36.23	0.96	37.27	1.00	35.07	0.97	30.19	0.90	23.84	0.79	17.57	0.66	12.77	0.54	10.08	0.44	9.64	0.40
	7.45	9.53	0.36	11.22	0.39	14.85	0.47	20.06	0.59	26.10	0.72	31.76	0.83	35.64	0.91	36.67	0.95	34.51	0.92	29.73	0.84	23.50	0.73	17.34	0.60	12.62	0.48	9.96	0.39	9.52	0.36
	7.65	9.44	0.39	11.09	0.42	14.67	0.50	19.82	0.62	25.80	0.75	31.39	0.87	35.23	0.95	36.26	0.98	34.14	0.95	29.43	0.88	23.27	0.76	17.19	0.63	12.51	0.51	9.87	0.42	9.43	0.39
	7.85	9.34	0.41	10.97	0.44	14.50	0.53	19.59	0.65	25.50	0.78	31.04	0.90	34.85	0.98	35.87	1.02	33.79	0.99	29.13	0.91	23.05	0.80	17.04	0.66	12.40	0.54	9.79	0.45	9.33	0.41
	8.05	9.25	0.43	10.84	0.46	14.33	0.54	19.36	0.67	25.21	0.81	30.70	0.93	34.47	1.02	35.50	1.05	33.45	1.02	28.85	0.94	22.84	0.82	16.89	0.69	12.30	0.56	9.70	0.47	9.24	0.43
	8.26	9.15	0.44	10.71	0.47	14.15	0.55	19.11	0.68	24.89	0.83	30.32	0.95	34.06	1.04	35.09	1.07	33.07	1.04	28.54	0.96	22.61	0.84	16.73	0.70	12.18	0.57	9.60	0.48	9.13	0.44
	8.46	9.04	0.44	10.58	0.47	13.96	0.56	18.86	0.69	24.57	0.84	29.94	0.97	33.64	1.05	34.67	1.09	32.69	1.06	28.22	0.98	22.36	0.86	16.56	0.71	12.07	0.58	9.51	0.48	9.03	0.44
	8.66	8.93	0.45	10.44	0.48	13.77	0.57	18.60	0.71	24.24	0.86	29.54	0.99	33.21	1.08	34.23	1.11	32.29	1.08	27.89	1.00	22.11	0.87	16.38	0.73	11.94	0.59	9.41	0.49	8.92	0.45
	8.87	8.81	0.46	10.29	0.49	13.56	0.58	18.32	0.72	23.89	0.87	29.12	1.00	32.75	1.09	33.77	1.13	31.86	1.10	27.53	1.01	21.84	0.89	16.19	0.74	11.80	0.60	9.29	0.50	8.80	0.46
	9.07	8.69	0.46	10.12	0.49	13.34	0.59	18.02	0.72	23.49	0.88	28.65	1.01	32.22	1.11	33.24	1.14	31.37	1.11	27.12	1.03	21.53	0.90	15.96	0.75	11.65	0.61	9.17	0.50	8.68	0.46
	9.60	8.30	0.50	9.64	0.53	12.68	0.63	17.10	0.78	22.29	0.94	27.19	1.09	30.60	1.18	31.58	1.22	29.84	1.19	25.83	1.10	20.54	0.96	15.27	0.80	11.16	0.65	8.78	0.54	8.29	0.50
	9.80	8.16	0.52	9.47	0.55	12.44	0.66	16.78	0.81	21.88	0.98	26.69	1.12	30.05	1.23	31.03	1.26	29.33	1.23	25.40	1.14	20.21	0.99	15.04	0.83	11.00	0.68	8.65	0.57	8.15	0.52
	10.49	7.66	0.38	8.86	0.41	11.62	0.48	15.68	0.58	20.44	0.68	24.95	0.77	28.10	0.84	29.03	0.86	27.45	0.84	23.79	0.78	18.95	0.68	14.11	0.58	10.33	0.48	8.13	0.41	7.65	0.38
	11.22	7.08	0.41	8.17	0.44	10.71	0.53	14.45	0.65	18.86	0.79	23.04	0.91	25.98	0.99	26.87	1.02	25.45	1.00	22.08	0.92	17.60	0.80	13.12	0.67	9.61	0.54	7.55	0.45	7.08	0.41
	12.24	6.00	0.47	6.88	0.51	8.99	0.61	12.13	0.76	15.85	0.92	19.39	1.06	21.89	1.16	22.67	1.19	21.51	1.16	18.70	1.07	14.95	0.94	11.18	0.78	8.20	0.63	6.43	0.52	6.00	0.48
	12.75	5.24	0.51	5.98	0.54	7.80	0.66	10.52	0.82	13.73	1.00	16.79	1.16	18.96	1.27	19.65	1.31	18.66	1.28	16.26	1.18	13.03	1.02	9.77	0.85	7.19	0.68	5.64	0.56	5.24	0.51
	13.15	4.55	0.58	5.18	0.63	6.74	0.75	9.08	0.94	11.85	1.14	14.50	1.31	16.38	1.43	16.99	1.47	16.15	1.43	14.09	1.32	11.31	1.16	8.50	0.97	6.26	0.78	4.91	0.64	4.55	0.58
	13.61	4.14	0.50	4.71	0.54	6.18	0.64	8.45	0.78	11.21	0.94	13.90	1.08	15.84	1.17	16.51	1.20	15.70	1.17	13.65	1.09	10.87	0.95	8.07	0.80	5.86	0.66	4.53	0.55	4.14	0.50
	14.19	2.03	0.69	2.30	0.73	3.02	0.87	4.13	1.07	5.49	1.28	6.82	1.46	7.79	1.58	8.13	1.62	7.73	1.58	6.73	1.47	5.36	1.29	3.98	1.08	2.89	0.89	2.23	0.74	2.03	0.69
Line #2	0.00	10.86	0.26	13.28	0.29	17.85	0.35	24.05	0.45	30.97	0.56	37.21	0.65	41.24	0.72	41.95	0.74	39.02	0.72	33.17	0.65	25.81	0.56	18.74	0.45	13.52	0.35	10.85	0.29	10.83	0.26
	0.50	10.69	0.34	13.05	0.37	17.53	0.44	23.62	0.55	30.42	0.67	36.56	0.77	40.55	0.84	41.26	0.87	38.40	0.84	32.66	0.77	25.43	0.67	18.48	0.55	13.34	0.45	10.70	0.37	10.66	0.35
	1.00	10.58	0.37	12.89	0.40	17.31	0.48	23.32	0.59	30.06	0.71	36.16	0.81	40.14	0.89	40.87	0.91	38.07	0.89	32.40	0.82	25.24	0.71	18.35	0.59	13.26	0.48	10.62	0.40	10.56	0.37
	1.50	10.50	0.38	12.77	0.41	17.12	0.48	23.09	0.60	29.78	0.72	35.86	0.83	39.85	0.90	40.61	0.93	37.85	0.90	32.24	0.83	25.14	0.73	18.29	0.61	13.22	0.50	10.58	0.41	10.48	0.38
	2.00	10.43	0.39	12.65	0.41	16.96	0.48	22.87	0.60	29.53	0.72	35.60	0.83	39.59	0.90	40.39	0.93	37.67	0.91	32.11	0.84	25.05	0.73	18.25	0.61	13.19	0.50	10.54	0.42	10.41	0.39
	2.50	10.38	0.40	12.56	0.42	16.82	0.49	22.70	0.60	29.33	0.73	35.39	0.84	39.39	0.92	40.21	0.95	37.53	0.92	32.01	0.85	25.00	0.75	18.22	0.63	13.17	0.52	10.52	0.44	10.36	0.40
	3.00	10.37	0.39	12.54	0.40	16.79	0.46	22.65	0.58	29.28	0.70	35.34	0.82	39.35	0.90	40.17	0.93	37.50	0.92	32.00	0.85	25.00	0.75	18.23	0.64	13.18	0.53	10.51	0.44	10.35	0.39
	3.50	10.35	0.39	12.49	0.38	16.70	0.44	22.54	0.56	29.15	0.69	35.20	0.81	39.21	0.89	40.06	0.93	37.42	0.91	31.94	0.85	24.97	0.75	18.22	0.64	13.18	0.53	10.51	0.44	10.32	0.39
	4.00	10.24	0.41	12.30	0.42	16.41	0.49	22.14	0.61	28.66	0.75	34.65	0.87	38.64	0.95	39.53	0.98	36.98	0.96	31.63	0.89	24.79	0.79	18.13	0.67	13.13	0.55	10.45	0.46	10.22	0.41
	4.50	10.14	0.42	12.14	0.44	16.18	0.51	21.84	0.63	28.28	0.77	34.21	0.89	38.19	0.98	39.09	1.01	36.61	0.99	31.35	0.92	24.60	0.81	18.03	0.68	13.07	0.56	10.39	0.47	10.12	0.43
	5.00	10.11	0.41	12.06	0.43	16.06	0.50	21.70	0.61	28.14	0.75	34.10	0.87	38.11	0.95	39.06	0.98	36.61	0.96	31.38	0.89	24.65	0.78	18.07	0.66	13.10	0.54	10.40	0.45	10.09	0.41
	5.50	10.07	0.39	11.98	0.41	15.94	0.48	21.54	0.59	27.98	0.71	33.95	0.83	37.98	0.91	38.97	0.94	36.56	0.91	31.37	0.85	24.67	0.74	18.11	0.62	13.13	0.51	10.40	0.43	10.05	0.39
	6.00	9.92	0.40	11.76	0.42	15.61	0.50	21.08	0.62	27.36	0.76	33.20	0.87	37.15	0.96	38.13	0.99	35.81	0.96	30.77	0.89	24.26	0.77	17.85	0.64	12.97	0.52	10.27	0.44	9.90	0.40
	6.51	9.70	0.44	11.46	0.47	15.18	0.56	20.47	0.69	26.56	0.84	32.20	0.97	36.04	1.05	37.00	1.09	34.78	1.06	29.94	0.98	23.65	0.85	17.46	0.71	12.71	0.58	10.07	0.48	9.68	0.44
	6.82	9.66	0.45	11.40	0.48	15.10	0.56	20.38	0.69	26.49	0.84	32.17	0.96	36.04	1.05	37.04	1.08	34.83	1.06	29.98	0.98	23.68	0.86	17.47	0.72	12.71	0.59	10.05	0.49	9.65	0.45
	7.03	9.66	0.44	11.39	0.46	15.09	0.54	20.38	0.67	26.52	0.81	32.24	0.93	36.16	1.02	37.18	1.05	34.97	1.03	30.10	0.95	23.76	0.84	17.52	0.70	12.74	0.58	10.07	0.48	9.64	0.44
	7.23	9.65	0.40	11.37	0.42	15.06	0.50	20.36	0.62	26.52	0.76	32.28	0.88	36.23	0.96	37.27	1.00	35.07	0.97	30.19	0.90	23.84	0.79	17.57	0.66	12.77	0.54	10.08	0.44	9.64	0.40
	7.45	9.53	0.36	11.22	0.39	14.85	0.47	20.06	0.59	26.10	0.72	31.76	0.83	35.64	0.91	36.67	0.95	34.51	0.92	29.73	0.84	23.50	0.73	17.34	0.60	12.62	0.48	9.96	0.39	9.52	0.36
	7.65	9.44	0.39	11.09	0.42	14.67	0.50	19.82	0.62	25.80	0.75	31.39	0.87	35.23	0.95	36.26	0.98	34.14	0.95	29.43	0.88	23.27	0.76	17.19	0.63	12.51	0.51	9.87	0.42	9.43	0.39
	7.85	9.34	0.41	10.97	0.44	14.50	0.53	19.59	0.65	25.50	0.78	31.04	0.90	34.85	0.98	35.87	1.02	33.79	0.99	29.13	0.91	23.05	0.80	17.04	0.66	12.40	0.54	9.79	0.45	9.33	0.41
	8.05	9.25	0.43	10.84	0.46	14.33	0.54	19.36	0.67	25.21	0.81	30.70	0.93	34.47	1.02	35.50	1.05	33.45	1.02	28.85	0.94	22.84	0.82	16.89	0.69	12.30	0.56	9.70	0.47	9.24	0.43
	8.26	9.15	0.44	10.71	0.47	14.15	0.55	19.11	0.68	24.89	0.83	30.32	0.95	34.06	1.04	35.09	1.07	33.07	1.04	28.54	0.96	22.61	0.84	16.73	0.70	12.18	0.57	9.60	0.48	9.13	0.44
	8.46	9.04	0.44	10.58	0.47	13.96	0.56	18.86	0.69	24.57	0.84	29.94	0.97	33.64	1.05	34.67	1.09	32.69	1.06	28.22	0.98	22.36	0.86	16.56	0.71	12.07	0.58	9.51	0.48	9.03	0.44
	8.66	8.93	0.45	10.44	0.48	13.77	0.57	18.60	0.71	24.24	0.86	29.54	0.99	33.21	1.08	34.23	1.11	32.29	1.08	27.89	1.00	22.11	0.87	16.38	0.73	11.94	0.59	9.41	0.49	8.92	0.45
	8.87	8.81	0.46	10.29	0.49	13.56	0.58	18.32	0.72	23.89	0.87	29.12	1.00	32.75	1.09	33.77	1.13	31.86	1.10	27.53	1.01	21.84	0.89	16.19	0.74	11.80	0.60	9.29	0.50	8.80	0.46
	9.07	8.69	0.46	10.12	0.49	13.34	0.59	18.02	0.72	23.49	0.88	28.65	1.01	32.22	1.11	33.24	1.14	31.37	1.11	27.12	1.03	21.53	0.90	15.96	0.75	11.65	0.61	9.17	0.50	8.68	0.46
	9.60	8.30	0.50	9.64	0.53	12.68	0.63	17.10	0.78	22.29	0.94	27.19	1.09	30.60	1.18	31.58	1.22	29.84	1.19	25.83	1.10	20.54	0.96	15.27	0.80	11.16	0.65	8.78	0.54	8.29	0.50
	9.80	8.16	0.52	9.47	0.55	12.44	0.66	16.78	0.81	21.88	0.98	26.69	1.12	30.05	1.23	31.03	1.26	29.33	1.23	25.40	1.14	20.21	0.99	15.04	0.83	11.00	0.68	8.65	0.57	8.15	0.52
	10.12	8.30	0.39	9.61	0.42	12.67	0.50	17.20	0.63	22.58	0.76	27.71	0.88	31.33	0.96	32.43	1.00	30.67	0.97	26.53	0.90	21.05	0.78	15.59	0.65	11.33	0.53	8.85	0.43	8.29	0.39
	10.65	8.17	0.35	9.43	0.38	12.43	0.45	16.92	0.56	22.27	0.68	27.39	0.78	31.02	0.85	32.16	0.88	30.44	0.86	26.35	0.79	20.92	0.69	15.49	0.58	11.25	0.47	8.76	0.39	8.16	0.35
	11.19	7.77	0.41	8.94	0.44	11.77	0.52	16.02	0.64	21.09	0.78	25.96	0.90	29.42	0.98	30.51	1.01	28.91	0.98	25.05	0.91	19.92	0.79	14.77	0.66	10.74	0.54	8.35	0.45	7.76	0.41
	11.76	7.14	0.47	8.19	0.50	10.75	0.60	14.61	0.75	19.22	0.90	23.65	1.04	26.81	1.14	27.82	1.17	26.39	1.14	22.91	1.05	18.25	0.92	13.58	0.76	9.89	0.62	7.70	0.51	7.13	0.47
	12.35	6.15	0.58	7.02	0.62	9.17	0.74	12.41	0.92	16.28	1.11	19.99	1.27	22.63	1.39	23.49	1.43	22.31	1.39	19.42	1.28	15.55	1.12	11.63	0.94	8.51	0.76	6.64	0.63	6.15	0.58
	12.96	5.50	0.49	6.25	0.53	8.21	0.63	11.23	0.79	14.89	0.95	18.46	1.10	21.05	1.20	21.93	1.24	20.84	1.21	18.10	1.11	14.42	0.97	10.71	0.81	7.77	0.65	6.00	0.54	5.50	0.49
	13.66	2.86	0.76	3.24	0.81	4.22	0.96	5.72	1.18	7.53	1.41	9.28	1.62	10.53	1.75	10.96	1.81	10.43	1.76	9.10	1.63	7.30	1.43	5.47	1.20	4.01	0.98	3.12	0.82	2.86	0.76
	14.16	0.08	0.86	0.09	0.92	0.11	1.10	0.15	1.35	0.20	1.62	0.24	1.86	0.26	2.02	0.27	2.08	0.26	2.03	0.24	1.87	0.20	1.64	0.15	1.37	0.11	1.12	0.09	0.94	0.08	0.86
	0.00	10.86	0.26	13.28	0.29	17.85	0.35	24.05	0.45	30.97	0.56	37.21	0.65	41.24	0.72	41.95	0.74	39.02	0.72	33.17	0.65	25.81	0.56	18.74	0.45	13.52	0.35	10.85	0.29	10.83	0.26
	0.50	10.69	0.34	13.05	0.37	17.53	0.44	23.62	0.55	30.42	0.67	36.56	0.77	40.55	0.84	41.26	0.87	38.40	0.84	32.66	0.77	25.43	0.67	18.48	0.55	13.34	0.45	10.70	0.37	10.66	0.35
	1.00	10.58	0.37	12.89	0.40	17.31	0.48	23.32	0.59	30.06	0.71	36.16	0.81	40.14	0.89	40.87	0.91	38.07	0.89	32.40	0.82	25.24	0.71	18.35	0.59	13.26	0.48	10.62	0.40	10.56	0.37
	1.50	10.50	0.38	12.77	0.41	17.12	0.48	23.09	0.60	29.78	0.72	35.86	0.83	39.85	0.90	40.61	0.93	37.85	0.90	32.24	0.83	25.14	0.73	18.29	0.61	13.22	0.50	10.58	0.41	10.48	0.38
	2.00	10.43	0.39	12.65	0.41	16.96	0.48	22.87	0.60	29.53	0.72	35.60	0.83	39.59	0.90	40.39	0.93	37.67	0.91	32.11	0.84	25.05	0.73	18.25	0.61	13.19	0.50	10.54	0.42	10.41	0.39
	2.50	10.38	0.40	12.56	0.42	16.82	0.49	22.70	0.60	29.33	0.73	35.39	0.84	39.39	0.92	40.21	0.95	37.53	0.92	32.01	0.85	25.00	0.75	18.22	0.63	13.17	0.52	10.52	0.44	10.36	0.40
	3.00	10.37	0.39	12.54	0.40	16.79	0.46	22.65	0.58	29.28	0.70	35.34	0.82	39.35	0.90	40.17	0.93	37.50	0.92	32.00	0.85	25.00	0.75	18.23	0.64	13.18	0.53	10.51	0.44	10.35	0.39
	3.50	10.35	0.39	12.49	0.38	16.70	0.44	22.54	0.56	29.15	0.69	35.20	0.81	39.21	0.89	40.06	0.93	37.42	0.91	31.94	0.85	24.97	0.75	18.22	0.64	13.18	0.53	10.51	0.44	10.32	0.39

	4.00	10.24	0.41	12.30	0.42	16.41	0.49	22.14	0.61	28.66	0.75	34.65	0.87	38.64	0.95	39.53	0.98	36.98	0.96	31.63	0.89	24.79	0.79	18.13	0.67	13.13	0.55	10.45	0.46	10.22	0.41
	4.50	10.14	0.42	12.14	0.44	16.18	0.51	21.84	0.63	28.28	0.77	34.21	0.89	38.19	0.98	39.09	1.01	36.61	0.99	31.35	0.92	24.60	0.81	18.03	0.68	13.07	0.56	10.39	0.47	10.12	0.43
	5.00	10.11	0.41	12.06	0.43	16.06	0.50	21.70	0.61	28.14	0.75	34.10	0.87	38.11	0.95	39.06	0.98	36.61	0.96	31.38	0.89	24.65	0.78	18.07	0.66	13.10	0.54	10.40	0.45	10.09	0.41
	5.50	10.07	0.39	11.98	0.41	15.94	0.48	21.54	0.59	27.98	0.71	33.95	0.83	37.98	0.91	38.97	0.94	36.56	0.91	31.37	0.85	24.67	0.74	18.11	0.62	13.13	0.51	10.40	0.43	10.05	0.39
	6.00	9.92	0.40	11.76	0.42	15.61	0.50	21.08	0.62	27.36	0.76	33.20	0.87	37.15	0.96	38.13	0.99	35.81	0.96	30.77	0.89	24.26	0.77	17.85	0.64	12.97	0.52	10.27	0.44	9.90	0.40
	6.51	9.70	0.44	11.46	0.47	15.18	0.56	20.47	0.69	26.56	0.84	32.20	0.97	36.04	1.05	37.00	1.09	34.78	1.06	29.94	0.98	23.65	0.85	17.46	0.71	12.71	0.58	10.07	0.48	9.68	0.44
	6.82	9.66	0.45	11.40	0.48	15.10	0.56	20.38	0.69	26.49	0.84	32.17	0.96	36.04	1.05	37.04	1.08	34.83	1.06	29.98	0.98	23.68	0.86	17.47	0.72	12.71	0.59	10.05	0.49	9.65	0.45
Line #3	7.02	9.69	0.43	11.42	0.45	15.14	0.53	20.46	0.65	26.63	0.79	32.38	0.90	36.32	0.99	37.35	1.02	35.13	0.99	30.24	0.92	23.87	0.81	17.60	0.68	12.79	0.56	10.10	0.47	9.67	0.43
	7.24	9.71	0.36	11.44	0.38	15.17	0.46	20.53	0.57	26.75	0.69	32.57	0.79	36.56	0.87	37.62	0.89	35.40	0.87	30.46	0.80	24.04	0.70	17.71	0.59	12.86	0.47	10.14	0.39	9.70	0.36
	7.47	9.63	0.33	11.33	0.36	15.02	0.44	20.31	0.55	26.45	0.67	32.19	0.77	36.13	0.85	37.18	0.87	34.99	0.85	30.13	0.78	23.79	0.68	17.55	0.56	12.76	0.45	10.06	0.37	9.61	0.33
	7.70	9.52	0.33	11.19	0.36	14.82	0.43	20.03	0.53	26.08	0.64	31.73	0.74	35.62	0.81	36.66	0.83	34.51	0.81	29.74	0.74	23.51	0.64	17.36	0.52	12.63	0.42	9.96	0.35	9.51	0.33
	7.94	9.39	0.36	11.02	0.39	14.58	0.47	19.69	0.58	25.62	0.70	31.17	0.80	34.98	0.88	36.01	0.90	33.92	0.87	29.25	0.80	23.15	0.70	17.12	0.58	12.47	0.47	9.83	0.39	9.38	0.36
	8.17	9.23	0.40	10.82	0.43	14.29	0.52	19.28	0.64	25.08	0.77	30.50	0.89	34.22	0.97	35.23	0.99	33.20	0.97	28.65	0.89	22.70	0.77	16.81	0.64	12.25	0.52	9.67	0.43	9.21	0.40
	8.40	9.06	0.44	10.61	0.47	13.99	0.57	18.87	0.70	24.52	0.85	29.81	0.98	33.44	1.07	34.42	1.10	32.45	1.07	28.03	0.99	22.23	0.86	16.48	0.71	12.04	0.58	9.50	0.48	9.05	0.44
	8.68	8.81	0.47	10.30	0.51	13.56	0.61	18.25	0.75	23.69	0.91	28.77	1.04	32.26	1.14	33.21	1.17	31.33	1.14	27.08	1.05	21.52	0.91	15.99	0.76	11.70	0.62	9.25	0.51	8.80	0.47
	8.96	8.64	0.47	10.09	0.50	13.28	0.61	17.88	0.75	23.22	0.90	28.22	1.04	31.67	1.13	32.62	1.16	30.78	1.13	26.62	1.04	21.16	0.91	15.73	0.75	11.52	0.61	9.10	0.51	8.63	0.47
	9.25	8.73	0.31	10.18	0.34	13.42	0.41	18.14	0.52	23.64	0.64	28.82	0.75	32.40	0.82	33.41	0.84	31.52	0.82	27.24	0.75	21.62	0.64	16.04	0.52	11.71	0.41	9.22	0.33	8.72	0.31
	9.57	8.67	0.26	10.09	0.28	13.31	0.34	18.00	0.42	23.49	0.50	28.65	0.57	32.23	0.62	33.25	0.64	31.39	0.62	27.13	0.56	21.54	0.48	15.98	0.40	11.66	0.32	9.17	0.27	8.66	0.26
	10.39	8.25	0.34	9.57	0.37	12.60	0.45	17.06	0.56	22.29	0.69	27.23	0.80	30.69	0.87	31.70	0.90	29.97	0.87	25.94	0.80	20.62	0.70	15.31	0.57	11.17	0.46	8.76	0.38	8.24	0.34
	11.25	7.47	0.43	8.62	0.47	11.31	0.56	15.29	0.70	19.96	0.85	24.38	0.98	27.48	1.07	28.41	1.10	26.89	1.07	23.34	0.99	18.61	0.86	13.88	0.71	10.15	0.57	7.97	0.47	7.46	0.43
	11.92	6.30	0.57	7.23	0.62	9.42	0.74	12.65	0.92	16.42	1.11	19.97	1.27	22.45	1.39	23.21	1.43	22.01	1.39	19.17	1.28	15.39	1.11	11.56	0.92	8.53	0.75	6.73	0.62	6.29	0.57
	12.50	5.61	0.45	6.42	0.48	8.40	0.58	11.35	0.72	14.83	0.87	18.13	1.00	20.47	1.09	21.21	1.12	20.13	1.08	17.53	1.00	14.04	0.86	10.52	0.72	7.72	0.58	6.04	0.48	5.61	0.45
	13.04	3.03	0.61	3.44	0.67	4.39	0.82	5.74	1.03	7.24	1.27	8.60	1.48	9.51	1.62	9.77	1.67	9.32	1.62	8.24	1.47	6.78	1.27	5.26	1.03	4.00	0.81	3.23	0.66	3.03	0.61
	13.56	0.29	0.68	0.32	0.74	0.38	0.90	0.43	1.13	0.45	1.37	0.44	1.59	0.42	1.73	0.40	1.78	0.39	1.73	0.39	1.59	0.38	1.37	0.35	1.13	0.32	0.90	0.29	0.74	0.29	0.68
	13.66	0.02	0.54	0.02	0.59	0.02	0.72	0.03	0.92	0.02	1.13	0.02	1.32	0.01	1.45	0.01	1.50	0.01	1.45	0.01	1.32	0.01	1.13	0.02	0.92	0.02	0.72	0.02	0.59	0.02	0.54
	0.00	10.86	0.26	13.28	0.29	17.85	0.35	24.05	0.45	30.97	0.56	37.21	0.65	41.24	0.72	41.95	0.74	39.02	0.72	33.17	0.65	25.81	0.56	18.74	0.45	13.52	0.35	10.85	0.29	10.83	0.26
	0.50	10.69	0.34	13.05	0.37	17.53	0.44	23.62	0.55	30.42	0.67	36.56	0.77	40.55	0.84	41.26	0.87	38.40	0.84	32.66	0.77	25.43	0.67	18.48	0.55	13.34	0.45	10.70	0.37	10.66	0.35
	1.00	10.58	0.37	12.89	0.40	17.31	0.48	23.32	0.59	30.06	0.71	36.16	0.81	40.14	0.89	40.87	0.91	38.07	0.89	32.40	0.82	25.24	0.71	18.35	0.59	13.26	0.48	10.62	0.40	10.56	0.37
	1.50	10.50	0.38	12.77	0.41	17.12	0.48	23.09	0.60	29.78	0.72	35.86	0.83	39.85	0.90	40.61	0.93	37.85	0.90	32.24	0.83	25.14	0.73	18.29	0.61	13.22	0.50	10.58	0.41	10.48	0.38
	2.00	10.43	0.39	12.65	0.41	16.96	0.48	22.87	0.60	29.53	0.72	35.60	0.83	39.59	0.90	40.39	0.93	37.67	0.91	32.11	0.84	25.05	0.73	18.25	0.61	13.19	0.50	10.54	0.42	10.41	0.39
	2.50	10.38	0.40	12.56	0.42	16.82	0.49	22.70	0.60	29.33	0.73	35.39	0.84	39.39	0.92	40.21	0.95	37.53	0.92	32.01	0.85	25.00	0.75	18.22	0.63	13.17	0.52	10.52	0.44	10.36	0.40
	3.00	10.37	0.39	12.54	0.40	16.79	0.46	22.65	0.58	29.28	0.70	35.34	0.82	39.35	0.90	40.17	0.93	37.50	0.92	32.00	0.85	25.00	0.75	18.23	0.64	13.18	0.53	10.51	0.44	10.35	0.39
	3.50	10.35	0.39	12.49	0.38	16.70	0.44	22.54	0.56	29.15	0.69	35.20	0.81	39.21	0.89	40.06	0.93	37.42	0.91	31.94	0.85	24.97	0.75	18.22	0.64	13.18	0.53	10.51	0.44	10.32	0.39
	4.00	10.24	0.41	12.30	0.42	16.41	0.49	22.14	0.61	28.66	0.75	34.65	0.87	38.64	0.95	39.53	0.98	36.98	0.96	31.63	0.89	24.79	0.79	18.13	0.67	13.13	0.55	10.45	0.46	10.22	0.41
	4.50	10.14	0.42	12.14	0.44	16.18	0.51	21.84	0.63	28.28	0.77	34.21	0.89	38.19	0.98	39.09	1.01	36.61	0.99	31.35	0.92	24.60	0.81	18.03	0.68	13.07	0.56	10.39	0.47	10.12	0.43
	5.00	10.11	0.41	12.06	0.43	16.06	0.50	21.70	0.61	28.14	0.75	34.10	0.87	38.11	0.95	39.06	0.98	36.61	0.96	31.38	0.89	24.65	0.78	18.07	0.66	13.10	0.54	10.40	0.45	10.09	0.41
	5.50	10.07	0.39	11.98	0.41	15.94	0.48	21.54	0.59	27.98	0.71	33.95	0.83	37.98	0.91	38.97	0.94	36.56	0.91	31.37	0.85	24.67	0.74	18.11	0.62	13.13	0.51	10.40	0.43	10.05	0.39
	6.00	9.92	0.40	11.76	0.42	15.61	0.50	21.08	0.62	27.36	0.76	33.20	0.87	37.15	0.96	38.13	0.99	35.81	0.96	30.77	0.89	24.26	0.77	17.85	0.64	12.97	0.52	10.27	0.44	9.90	0.40
	6.51	9.70	0.44	11.46	0.47	15.18	0.56	20.47	0.69	26.56	0.84	32.20	0.97	36.04	1.05	37.00	1.09	34.78	1.06	29.94	0.98	23.65	0.85	17.46	0.71	12.71	0.58	10.07	0.48	9.68	0.44
	6.82	9.66	0.45	11.40	0.48	15.10	0.56	20.38	0.69	26.49	0.84	32.17	0.96	36.04	1.05	37.04	1.08	34.83	1.06	29.98	0.98	23.68	0.86	17.47	0.72	12.71	0.59	10.05	0.49	9.65	0.45
	7.02	9.69	0.43	11.42	0.45	15.14	0.53	20.46	0.65	26.63	0.79	32.38	0.90	36.32	0.99	37.35	1.02	35.13	0.99	30.24	0.92	23.87	0.81	17.60	0.68	12.79	0.56	10.10	0.47	9.67	0.43
Line #4	7.24	9.71	0.36	11.44	0.38	15.17	0.46	20.53	0.57	26.75	0.69	32.57	0.79	36.56	0.87	37.62	0.89	35.40	0.87	30.46	0.80	24.04	0.70	17.71	0.59	12.86	0.47	10.14	0.39	9.70	0.36
	7.47	9.63	0.33	11.33	0.36	15.02	0.44	20.31	0.55	26.45	0.67	32.19	0.77	36.13	0.85	37.18	0.87	34.99	0.85	30.13	0.78	23.79	0.68	17.55	0.56	12.76	0.45	10.06	0.37	9.61	0.33
	7.70	9.52	0.33	11.19	0.36	14.82	0.43	20.03	0.53	26.08	0.64	31.73	0.74	35.62	0.81	36.66	0.83	34.51	0.81	29.74	0.74	23.51	0.64	17.36	0.52	12.63	0.42	9.96	0.35	9.51	0.33
	7.94	9.39	0.36	11.02	0.39	14.58	0.47	19.69	0.58	25.62	0.70	31.17	0.80	34.98	0.88	36.01	0.90	33.92	0.87	29.25	0.80	23.15	0.70	17.12	0.58	12.47	0.47	9.83	0.39	9.38	0.36
	8.17	9.23	0.40	10.82	0.43	14.29	0.52	19.28	0.64	25.08	0.77	30.50	0.89	34.22	0.97	35.23	0.99	33.20	0.97	28.65	0.89	22.70	0.77	16.81	0.64	12.25	0.52	9.67	0.43	9.21	0.40
	8.40	9.06	0.44	10.61	0.47	13.99	0.57	18.87	0.70	24.52	0.85	29.81	0.98	33.44	1.07	34.42	1.10	32.45	1.07	28.03	0.99	22.23	0.86	16.48	0.71	12.04	0.58	9.50	0.48	9.05	0.44
	8.68	8.81	0.47	10.30	0.51	13.56	0.61	18.25	0.75	23.69	0.91	28.77	1.04	32.26	1.14	33.21	1.17	31.33	1.14	27.08	1.05	21.52	0.91	15.99	0.76	11.70	0.62	9.25	0.51	8.80	0.47
	8.96	8.64	0.47	10.09	0.50	13.28	0.61	17.88	0.75	23.22	0.90	28.22	1.04	31.67	1.13	32.62	1.16	30.78	1.13	26.62	1.04	21.16	0.91	15.73	0.75	11.52	0.61	9.10	0.51	8.63	0.47
	9.19	8.52	0.06	9.94	0.07	13.06	0.08	17.56	0.08	22.77	0.07	27.63	0.06	30.96	0.04	31.87	0.04	30.07	0.03	26.03	0.04	20.73	0.05	15.44	0.06	11.32	0.06	8.96	0.06	8.51	0.06
	9.43	8.48	0.35	9.88	0.38	13.01	0.46	17.53	0.57	22.80	0.70	27.74	0.81	31.15	0.89	32.11	0.92	30.31	0.89	26.21	0.81	20.83	0.70	15.49	0.57	11.33	0.46	8.94	0.38	8.47	0.35
	9.93	8.00	0.43	9.30	0.46	12.22	0.55	16.48	0.68	21.46	0.81	26.15	0.93	29.40	1.01	30.33	1.04	28.65	1.01	24.80	0.93	19.72	0.81	14.66	0.67	10.73	0.55	8.46	0.46	7.99	0.43
	10.43	7.46	0.41	8.65	0.45	11.36	0.55	15.31	0.69	19.93	0.83	24.29	0.96	27.33	1.05	28.22	1.08	26.67	1.05	23.11	0.96	18.40	0.83	13.70	0.69	10.04	0.55	7.91	0.45	7.45	0.41
	10.94	6.80	0.50	7.86	0.54	10.30	0.65	13.88	0.81	18.08	0.98	22.04	1.13	24.80	1.23	25.62	1.27	24.24	1.24	21.02	1.14	16.77	0.99	12.51	0.82	9.17	0.66	7.22	0.54	6.79	0.50
	11.44	5.99	0.54	6.91	0.58	9.02	0.70	12.13	0.88	15.76	1.07	19.19	1.23	21.59	1.34	22.30	1.38	21.12	1.35	18.36	1.24	14.69	1.07	11.00	0.89	8.10	0.71	6.38	0.59	5.99	0.54
	11.94	5.23	0.48	6.00	0.52	7.85	0.64	10.59	0.80	13.82	0.98	16.90	1.14	19.07	1.25	19.75	1.29	18.72	1.25	16.26	1.15	12.99	0.99	9.72	0.81	7.13	0.64	5.60	0.53	5.22	0.48
	12.45	4.84	0.43	5.54	0.46	7.30	0.55	9.98	0.67	13.19	0.79	16.29	0.91	18.52	0.98	19.25	1.01	18.25	0.98	15.82	0.90	12.57	0.79	9.32	0.66	6.76	0.55	5.24	0.46	4.83	0.43
	12.96	3.61	0.58	4.13	0.62	5.45	0.75	7.47	0.92	9.91	1.11	12.28	1.27	13.99	1.38	14.56	1.42	13.82	1.38	11.98	1.28	9.51	1.12	7.04	0.93	5.09	0.76	3.93	0.63	3.61	0.58
	13.52	1.25	0.75	1.43	0.81	1.88	0.96	2.59	1.18	3.45	1.41	4.29	1.62	4.90	1.75	5.11	1.80	4.85	1.76	4.19	1.62	3.32	1.42	2.45	1.19	1.77	0.97	1.36	0.81	1.25	0.75
	13.63	0.59	0.79	0.67	0.85	0.89	1.02	1.22	1.25	1.63	1.50	2.03	1.71	2.32	1.86	2.42	1.91	2.29	1.86	1.98	1.72	1.57	1.50	1.16	1.26	0.84	1.03	0.64	0.86	0.59	0.79
	0.00	10.86	0.26	13.28	0.29	17.85	0.35	24.05	0.45	30.97	0.56	37.21	0.65	41.24	0.72	41.95	0.74	39.02	0.72	33.17	0.65	25.81	0.56	18.74	0.45	13.52	0.35	10.85	0.29	10.83	0.26
	0.50	10.69	0.34	13.05	0.37	17.53	0.44	23.62	0.55	30.42	0.67	36.56	0.77	40.55	0.84	41.26	0.87	38.40	0.84	32.66	0.77	25.43	0.67	18.48	0.55	13.34	0.45	10.70	0.37	10.66	0.35
	1.00	10.58	0.37	12.89	0.40	17.31	0.48	23.32	0.59	30.06	0.71	36.16	0.81	40.14	0.89	40.87	0.91	38.07	0.89	32.40	0.82	25.24	0.71	18.35	0.59	13.26	0.48	10.62	0.40	10.56	0.37
	1.50	10.50	0.38	12.77	0.41	17.12	0.48	23.09	0.60	29.78	0.72	35.86	0.83	39.85	0.90	40.61	0.93	37.85	0.90	32.24	0.83	25.14	0.73	18.29	0.61	13.22	0.50	10.58	0.41	10.48	0.38
	2.00	10.43	0.39	12.65	0.41	16.96	0.48	22.87	0.60	29.53	0.72	35.60	0.83	39.59	0.90	40.39	0.93	37.67	0.91	32.11	0.84	25.05	0.73	18.25	0.61	13.19	0.50	10.54	0.42	10.41	0.39
	2.50	10.38	0.40	12.56	0.42	16.82	0.49	22.70	0.60	29.33	0.73	35.39	0.84	39.39	0.92	40.21	0.95	37.53	0.92	32.01	0.85	25.00	0.75	18.22	0.63	13.17	0.52	10.52	0.44	10.36	0.40
	3.00	10.37	0.39	12.54	0.40	16.79	0.46	22.65	0.58	29.28	0.70	35.34	0.82	39.35	0.90	40.17	0.93	37.50	0.92	32.00	0.85	25.00	0.75	18.23	0.64	13.18	0.53	10.51	0.44	10.35	0.39
	3.50	10.35	0.39	12.49	0.38	16.70	0.44	22.54	0.56	29.15	0.69	35.20	0.81	39.21	0.89	40.06	0.93	37.42	0.91	31.94	0.85	24.97	0.75	18.22	0.64	13.18	0.53	10.51	0.44	10.32	0.39
	4.00	10.24	0.41	12.30	0.42	16.41	0.49	22.14	0.61	28.66	0.75	34.65	0.87	38.64	0.95	39.53	0.98	36.98	0.96	31.63	0.89	24.79	0.79	18.13	0.67	13.13	0.55	10.45	0.46	10.22	0.41
	4.50	10.14	0.42	12.14	0.44	16.18	0.51	21.84	0.63	28.28	0.77	34.21	0.89	38.19	0.98	39.09	1.01	36.61	0.99	31.35	0.92	24.60	0.81	18.03	0.68	13.07	0.56	10.39	0.47	10.12	0.43
Line #5	5.00	10.11	0.41	12.06	0.43	16.06	0.50	21.70	0.61	28.14	0.75	34.10	0.87	38.11	0.95	39.06	0.98	36.61	0.96	31.38	0.89	24.65	0.78	18.07	0.66	13.10	0.54	10.40	0.45	10.09	0.41
	5.56	9.97	0.17	11.90	0.19	15.83	0.22	21.35	0.25	27.65	0.27	33.44	0.29	37.33	0.29	38.23	0.29	35.83	0.28	30.73	0.27	24.17	0.24	17.75	0.22	12.89	0.20	10.25	0.18	9.95	0.17
	5.85	9.89	0.23	11.79	0.25	15.68	0.30	21.16	0.38	27.42	0.46	33.21	0.53	37.10	0.57	38.01	0.59	35.64	0.57	30.56	0.52	24.03	0.46	17.64	0.38	12.81	0.31	10.17	0.25	9.87	0.23
	6.36	9.65	0.28	11.49	0.30	15.26	0.37	20.58	0.46	26.67	0.56	32.28	0.65	36.07	0.71	36.97	0.73	34.68	0.70	29.76	0.64	23.43	0.56	17.23	0.46	12.52	0.37	9.95	0.30	9.63	0.28
	7.12	8.99	0.33	10.67	0.37	14.13	0.46	18.99	0.59	24.54	0.73	29.65	0.84	33.09	0.92	33.92	0.95	31.84	0.92	27.39	0.83	21.63	0.71	15.97	0.57	11.65	0.45	9.28	0.36	8.97	0.33
	7.96	7.74	0.44	9.15	0.48	12.06	0.60	16.13	0.76	20.74	0.93	24.97	1.07	27.80	1.17	28.48	1.20	26.77	1.17	23.09	1.06	18.33	0.91	13.62	0.73	10.00	0.58	7.99	0.47	7.73	0.44
	8.67	6.80	0.50	8.02	0.55	10.56	0.68	14.16	0.84	18.29	1.02	22.10	1.17	24.70	1.27	25.35	1.30	23.71	1.27	20.39	1.16	16.34	1.00	12.04	0.83	8.88	0.66	7.04	0.54	6.79	0.50
	9.17	6.24	0.45	7.34	0.50	9.68	0.61	13.00	0.77	16.83	0.94	20.38	1.08	22.82	1.18	23.44	1.21	22.01	1.17	18.98	1.07	15.13	0.92	11.18	0.75	8.21	0.60	6.49	0.49	6.23	0.45
	9.68	5.59	0.44	6.55	0.48	8.64	0.60	11.63	0.76	15.08	0.92	18.29	1.07	20.51	1.17	21.09	1.20	19.82	1.16	17.11	1.05	13.66	0.90	10.11	0.73	7.42	0.58	5.85	0.47	5.59	0.44
	10.18	4.87	0.30	5.68	0.33	7.48	0.42	10.07	0.55	13.08	0.69	15.90	0.82	17.85	0.91	18.39	0.94	17.29	0.90	14.94	0.81	11.96	0.67	8.85	0.53	6.50	0.40	5.11	0.32	4.86	0.30
	10.69	3.34	0.37	3.88	0.42	5.07	0.53	6.77	0.69	8.73	0.86	10.55	1.02	11.82	1.13	12.16	1.17	11.45	1.12	9.92	1.01	8.00	0.84	5.97	0.66	4.43	0.51	3.50	0.40	3.33	0.37
	11.24	1.13	0.05	1.31	0.06	1.69	0.07	2.22	0.10	2.82	0.12	3.36	0.15	3.73	0.17	3.83	0.17	3.60	0.16	3.14	0.14	2.58	0.12	1.95	0.09	1.48	0.07	1.18	0.06	1.13	0.05

RAA - Simulation - Raw Data

Table A7.5: RAA2 - Finer Resolution - 10% Growth

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
	0.00	11.02	0.26	13.34	0.29	17.76	0.35	23.79	0.44	30.54	0.55	36.67	0.64	40.66	0.70	41.39	0.72	38.59	0.70	32.88	0.64	25.74	0.55	18.88	0.44	13.74	0.35	10.95	0.29	10.85	0.26
	0.50	10.85	0.35	13.11	0.37	17.44	0.44	23.37	0.54	30.01	0.65	36.04	0.76	39.98	0.82	40.71	0.85	37.98	0.83	32.38	0.76	25.37	0.66	18.62	0.55	13.56	0.45	10.80	0.37	10.68	0.35
	1.00	10.74	0.38	12.95	0.40	17.22	0.47	23.07	0.58	29.66	0.70	35.65	0.80	39.58	0.87	40.34	0.90	37.66	0.87	32.12	0.80	25.18	0.70	18.49	0.59	13.47	0.48	10.72	0.41	10.58	0.38
	1.50	10.66	0.38	12.83	0.40	17.03	0.47	22.83	0.58	29.37	0.70	35.34	0.81	39.27	0.88	40.05	0.90	37.42	0.88	31.94	0.81	25.06	0.71	18.42	0.60	13.42	0.49	10.67	0.41	10.50	0.38
	2.00	10.59	0.38	12.71	0.40	16.87	0.48	22.63	0.59	29.13	0.70	35.09	0.81	39.03	0.88	39.84	0.91	37.25	0.88	31.83	0.82	24.99	0.72	18.38	0.60	13.40	0.49	10.64	0.41	10.44	0.38
	2.50	10.53	0.38	12.60	0.40	16.71	0.47	22.42	0.58	28.90	0.69	34.84	0.80	38.79	0.87	39.64	0.90	37.09	0.87	31.71	0.81	24.92	0.71	18.34	0.59	13.38	0.49	10.62	0.41	10.38	0.38
	3.00	10.46	0.37	12.50	0.39	16.56	0.46	22.22	0.57	28.66	0.69	34.59	0.79	38.55	0.86	39.42	0.89	36.91	0.87	31.59	0.80	24.84	0.70	18.31	0.59	13.35	0.48	10.59	0.40	10.33	0.37
	3.50	10.39	0.37	12.38	0.40	16.39	0.47	22.00	0.57	28.40	0.69	34.31	0.79	38.27	0.87	39.16	0.89	36.70	0.87	31.44	0.80	24.75	0.70	18.26	0.59	13.32	0.48	10.55	0.41	10.26	0.38
	4.00	10.31	0.38	12.25	0.40	16.20	0.47	21.75	0.58	28.10	0.70	33.97	0.80	37.92	0.88	38.84	0.90	36.43	0.88	31.23	0.81	24.62	0.71	18.18	0.60	13.27	0.49	10.51	0.41	10.19	0.38
	4.50	10.22	0.39	12.11	0.41	16.00	0.48	21.48	0.60	27.76	0.72	33.59	0.82	37.52	0.90	38.46	0.93	36.10	0.90	30.98	0.83	24.44	0.73	18.08	0.61	13.21	0.50	10.45	0.42	10.10	0.39
	5.00	10.17	0.39	12.02	0.41	15.87	0.48	21.33	0.59	27.60	0.71	33.44	0.82	37.40	0.89	38.37	0.92	36.04	0.90	30.95	0.83	24.44	0.73	18.08	0.61	13.21	0.51	10.44	0.43	10.06	0.39
	5.50	10.12	0.38	11.93	0.40	15.74	0.47	21.17	0.58	27.42	0.69	33.26	0.80	37.23	0.87	38.23	0.90	35.95	0.87	30.90	0.81	24.43	0.71	18.09	0.60	13.22	0.49	10.43	0.42	10.02	0.38
	6.00	9.97	0.40	11.72	0.42	15.42	0.50	20.72	0.62	26.83	0.74	32.54	0.85	36.43	0.93	37.42	0.96	35.22	0.94	30.32	0.86	24.01	0.76	17.82	0.63	13.05	0.52	10.30	0.44	9.87	0.40
	6.51	9.75	0.44	11.42	0.47	15.00	0.56	20.13	0.68	26.05	0.82	31.58	0.94	35.36	1.03	36.33	1.06	34.23	1.03	29.51	0.95	23.42	0.83	17.43	0.70	12.79	0.57	10.10	0.48	9.66	0.44
	6.82	9.70	0.45	11.35	0.48	14.91	0.56	20.03	0.69	25.95	0.83	31.50	0.95	35.31	1.03	36.31	1.06	34.22	1.04	29.50	0.96	23.41	0.84	17.42	0.71	12.78	0.59	10.08	0.50	9.61	0.46
	7.03	9.72	0.43	11.36	0.45	14.93	0.53	20.06	0.66	26.02	0.79	31.61	0.91	35.45	1.00	36.47	1.03	34.37	1.01	29.64	0.93	23.51	0.82	17.49	0.69	12.82	0.57	10.11	0.47	9.63	0.43
	7.23	9.73	0.34	11.38	0.36	14.95	0.44	20.09	0.56	26.05	0.70	31.61	0.82	35.43	0.91	36.43	0.95	34.33	0.93	29.61	0.85	23.50	0.74	17.49	0.61	12.84	0.48	10.12	0.39	9.65	0.34
Line #1	7.45	9.70	0.21	11.34	0.22	14.90	0.27	20.00	0.35	25.88	0.46	31.34	0.57	35.06	0.65	36.01	0.68	33.93	0.66	29.28	0.60	23.28	0.50	17.37	0.40	12.77	0.30	10.09	0.24	9.62	0.21
	7.65	9.60	0.26	11.22	0.28	14.71	0.33	19.73	0.41	25.53	0.51	30.92	0.60	34.60	0.67	35.54	0.70	33.49	0.68	28.92	0.62	23.01	0.53	17.18	0.43	12.65	0.34	9.99	0.28	9.52	0.26
	7.85	9.41	0.34	10.98	0.37	14.39	0.43	19.27	0.52	24.91	0.62	30.15	0.71	33.71	0.77	34.64	0.79	32.65	0.77	28.22	0.70	22.48	0.61	16.82	0.51	12.40	0.42	9.80	0.36	9.34	0.34
	8.05	9.28	0.41	10.81	0.44	14.16	0.52	18.96	0.63	24.50	0.75	29.66	0.85	33.18	0.92	34.09	0.94	32.15	0.91	27.79	0.84	22.16	0.74	16.58	0.62	12.23	0.52	9.67	0.44	9.21	0.41
	8.26	9.16	0.43	10.67	0.45	13.96	0.54	18.69	0.66	24.16	0.78	29.26	0.89	32.74	0.97	33.65	0.99	31.74	0.96	27.45	0.89	21.89	0.78	16.39	0.66	12.09	0.55	9.56	0.46	9.10	0.43
	8.46	9.05	0.44	10.53	0.46	13.77	0.55	18.44	0.68	23.83	0.81	28.86	0.93	32.29	1.01	33.20	1.03	31.32	1.01	27.10	0.93	21.62	0.82	16.20	0.69	11.96	0.57	9.46	0.48	8.99	0.44
	8.66	8.94	0.45	10.39	0.48	13.57	0.57	18.17	0.70	23.48	0.83	28.44	0.95	31.83	1.04	32.73	1.06	30.89	1.04	26.73	0.96	21.34	0.84	16.00	0.71	11.82	0.58	9.35	0.49	8.87	0.45
	8.87	8.81	0.47	10.23	0.49	13.36	0.59	17.88	0.72	23.12	0.86	28.00	0.98	31.34	1.07	32.24	1.10	30.43	1.07	26.35	0.99	21.05	0.87	15.79	0.73	11.67	0.60	9.23	0.51	8.75	0.47
	9.07	8.69	0.47	10.08	0.50	13.15	0.59	17.59	0.73	22.74	0.88	27.55	1.00	30.85	1.09	31.74	1.12	29.97	1.10	25.96	1.01	20.75	0.89	15.58	0.75	11.52	0.61	9.11	0.51	8.63	0.47
	9.60	8.31	0.51	9.60	0.54	12.51	0.64	16.72	0.78	21.60	0.94	26.17	1.07	29.31	1.17	30.18	1.20	28.53	1.17	24.75	1.08	19.82	0.95	14.92	0.80	11.05	0.65	8.74	0.55	8.26	0.51
	9.80	8.17	0.52	9.43	0.56	12.28	0.66	16.41	0.80	21.21	0.96	25.70	1.10	28.80	1.20	29.66	1.23	28.05	1.20	24.34	1.11	19.51	0.98	14.69	0.82	10.89	0.68	8.61	0.57	8.12	0.53
	10.49	7.67	0.37	8.83	0.40	11.48	0.46	15.34	0.55	19.83	0.64	24.04	0.72	26.95	0.77	27.76	0.79	26.27	0.77	22.81	0.71	18.30	0.63	13.79	0.54	10.23	0.46	8.09	0.40	7.63	0.37
	11.22	7.09	0.42	8.14	0.45	10.56	0.53	14.12	0.65	18.27	0.78	22.18	0.90	24.90	0.97	25.68	1.00	24.32	0.98	21.14	0.90	16.96	0.79	12.80	0.67	9.50	0.55	7.51	0.46	7.05	0.42
	12.24	6.01	0.47	6.86	0.51	8.88	0.60	11.87	0.74	15.37	0.89	18.68	1.02	21.00	1.11	21.69	1.15	20.58	1.12	17.92	1.03	14.42	0.90	10.91	0.76	8.12	0.62	6.41	0.52	5.99	0.47
	12.75	5.24	0.52	5.96	0.56	7.70	0.67	10.27	0.83	13.29	1.01	16.14	1.16	18.14	1.27	18.74	1.31	17.80	1.27	15.54	1.17	12.54	1.02	9.52	0.85	7.10	0.69	5.61	0.57	5.23	0.52
	13.15	4.56	0.59	5.16	0.63	6.66	0.76	8.87	0.93	11.48	1.12	13.95	1.29	15.68	1.40	16.22	1.44	15.42	1.41	13.47	1.30	10.89	1.14	8.28	0.96	6.19	0.78	4.89	0.65	4.54	0.60
	13.61	4.16	0.52	4.71	0.55	6.12	0.65	8.28	0.79	10.87	0.95	13.37	1.08	15.16	1.17	15.74	1.20	14.97	1.17	13.04	1.08	10.46	0.95	7.87	0.81	5.80	0.67	4.52	0.56	4.16	0.52
	14.19	2.05	0.69	2.31	0.74	3.00	0.87	4.07	1.06	5.36	1.25	6.61	1.42	7.51	1.53	7.81	1.58	7.43	1.54	6.47	1.42	5.19	1.26	3.91	1.07	2.88	0.88	2.24	0.75	2.05	0.70
	0.00	11.02	0.26	13.34	0.29	17.76	0.35	23.79	0.44	30.54	0.55	36.67	0.64	40.66	0.70	41.39	0.72	38.59	0.70	32.88	0.64	25.74	0.55	18.88	0.44	13.74	0.35	10.95	0.29	10.85	0.26
	0.50	10.85	0.35	13.11	0.37	17.44	0.44	23.37	0.54	30.01	0.65	36.04	0.76	39.98	0.82	40.71	0.85	37.98	0.83	32.38	0.76	25.37	0.66	18.62	0.55	13.56	0.45	10.80	0.37	10.68	0.35
	1.00	10.74	0.38	12.95	0.40	17.22	0.47	23.07	0.58	29.66	0.70	35.65	0.80	39.58	0.87	40.34	0.90	37.66	0.87	32.12	0.80	25.18	0.70	18.49	0.59	13.47	0.48	10.72	0.41	10.58	0.38
	1.50	10.66	0.38	12.83	0.40	17.03	0.47	22.83	0.58	29.37	0.70	35.34	0.81	39.27	0.88	40.05	0.90	37.42	0.88	31.94	0.81	25.06	0.71	18.42	0.60	13.42	0.49	10.67	0.41	10.50	0.38
	2.00	10.59	0.38	12.71	0.40	16.87	0.48	22.63	0.59	29.13	0.70	35.09	0.81	39.03	0.88	39.84	0.91	37.25	0.88	31.83	0.82	24.99	0.72	18.38	0.60	13.40	0.49	10.64	0.41	10.44	0.38
	2.50	10.53	0.38	12.60	0.40	16.71	0.47	22.42	0.58	28.90	0.69	34.84	0.80	38.79	0.87	39.64	0.90	37.09	0.87	31.71	0.81	24.92	0.71	18.34	0.59	13.38	0.49	10.62	0.41	10.38	0.38
	3.00	10.46	0.37	12.50	0.39	16.56	0.46	22.22	0.57	28.66	0.69	34.59	0.79	38.55	0.86	39.42	0.89	36.91	0.87	31.59	0.80	24.84	0.70	18.31	0.59	13.35	0.48	10.59	0.40	10.33	0.37
	3.50	10.39	0.37	12.38	0.40	16.39	0.47	22.00	0.57	28.40	0.69	34.31	0.79	38.27	0.87	39.16	0.89	36.70	0.87	31.44	0.80	24.75	0.70	18.26	0.59	13.32	0.48	10.55	0.41	10.26	0.38
	4.00	10.31	0.38	12.25	0.40	16.20	0.47	21.75	0.58	28.10	0.70	33.97	0.80	37.92	0.88	38.84	0.90	36.43	0.88	31.23	0.81	24.62	0.71	18.18	0.60	13.27	0.49	10.51	0.41	10.19	0.38
	4.50	10.22	0.39	12.11	0.41	16.00	0.48	21.48	0.60	27.76	0.72	33.59	0.82	37.52	0.90	38.46	0.93	36.10	0.90	30.98	0.83	24.44	0.73	18.08	0.61	13.21	0.50	10.45	0.42	10.10	0.39
	5.00	10.17	0.39	12.02	0.41	15.87	0.48	21.33	0.59	27.60	0.71	33.44	0.82	37.40	0.89	38.37	0.92	36.04	0.90	30.95	0.83	24.44	0.73	18.08	0.61	13.21	0.51	10.44	0.43	10.06	0.39
	5.50	10.12	0.38	11.93	0.40	15.74	0.47	21.17	0.58	27.42	0.69	33.26	0.80	37.23	0.87	38.23	0.90	35.95	0.87	30.90	0.81	24.43	0.71	18.09	0.60	13.22	0.49	10.43	0.42	10.02	0.38
	6.00	9.97	0.40	11.72	0.42	15.42	0.50	20.72	0.62	26.83	0.74	32.54	0.85	36.43	0.93	37.42	0.96	35.22	0.94	30.32	0.86	24.01	0.76	17.82	0.63	13.05	0.52	10.30	0.44	9.87	0.40
	6.51	9.75	0.44	11.42	0.47	15.00	0.56	20.13	0.68	26.05	0.82	31.58	0.94	35.36	1.03	36.33	1.06	34.23	1.03	29.51	0.95	23.42	0.83	17.43	0.70	12.79	0.57	10.10	0.48	9.66	0.44
	6.82	9.70	0.45	11.35	0.48	14.91	0.56	20.03	0.69	25.95	0.83	31.50	0.95	35.31	1.03	36.31	1.06	34.22	1.04	29.50	0.96	23.41	0.84	17.42	0.71	12.78	0.59	10.08	0.50	9.61	0.46
	7.03	9.72	0.43	11.36	0.45	14.93	0.53	20.06	0.66	26.02	0.79	31.61	0.91	35.45	1.00	36.47	1.03	34.37	1.01	29.64	0.93	23.51	0.82	17.49	0.69	12.82	0.57	10.11	0.47	9.63	0.43
	7.23	9.73	0.34	11.38	0.36	14.95	0.44	20.09	0.56	26.05	0.70	31.61	0.82	35.43	0.91	36.43	0.95	34.33	0.93	29.61	0.85	23.50	0.74	17.49	0.61	12.84	0.48	10.12	0.39	9.65	0.34
Line #2	7.45	9.70	0.21	11.34	0.22	14.90	0.27	20.00	0.35	25.88	0.46	31.34	0.57	35.06	0.65	36.01	0.68	33.93	0.66	29.28	0.60	23.28	0.50	17.37	0.40	12.77	0.30	10.09	0.24	9.62	0.21
	7.65	9.60	0.26	11.22	0.28	14.71	0.33	19.73	0.41	25.53	0.51	30.92	0.60	34.60	0.67	35.54	0.70	33.49	0.68	28.92	0.62	23.01	0.53	17.18	0.43	12.65	0.34	9.99	0.28	9.52	0.26
	7.85	9.41	0.34	10.98	0.37	14.39	0.43	19.27	0.52	24.91	0.62	30.15	0.71	33.71	0.77	34.64	0.79	32.65	0.77	28.22	0.70	22.48	0.61	16.82	0.51	12.40	0.42	9.80	0.36	9.34	0.34
	8.05	9.28	0.41	10.81	0.44	14.16	0.52	18.96	0.63	24.50	0.75	29.66	0.85	33.18	0.92	34.09	0.94	32.15	0.91	27.79	0.84	22.16	0.74	16.58	0.62	12.23	0.52	9.67	0.44	9.21	0.41
	8.26	9.16	0.43	10.67	0.45	13.96	0.54	18.69	0.66	24.16	0.78	29.26	0.89	32.74	0.97	33.65	0.99	31.74	0.96	27.45	0.89	21.89	0.78	16.39	0.66	12.09	0.55	9.56	0.46	9.10	0.43
	8.46	9.05	0.44	10.53	0.46	13.77	0.55	18.44	0.68	23.83	0.81	28.86	0.93	32.29	1.01	33.20	1.03	31.32	1.01	27.10	0.93	21.62	0.82	16.20	0.69	11.96	0.57	9.46	0.48	8.99	0.44
	8.66	8.94	0.45	10.39	0.48	13.57	0.57	18.17	0.70	23.48	0.83	28.44	0.95	31.83	1.04	32.73	1.06	30.89	1.04	26.73	0.96	21.34	0.84	16.00	0.71	11.82	0.58	9.35	0.49	8.87	0.45
	8.87	8.81	0.47	10.23	0.49	13.36	0.59	17.88	0.72	23.12	0.86	28.00	0.98	31.34	1.07	32.24	1.10	30.43	1.07	26.35	0.99	21.05	0.87	15.79	0.73	11.67	0.60	9.23	0.51	8.75	0.47
	9.07	8.69	0.47	10.08	0.50	13.15	0.59	17.59	0.73	22.74	0.88	27.55	1.00	30.85	1.09	31.74	1.12	29.97	1.10	25.96	1.01	20.75	0.89	15.58	0.75	11.52	0.61	9.11	0.51	8.63	0.47
	9.60	8.31	0.51	9.60	0.54	12.51	0.64	16.72	0.78	21.60	0.94	26.17	1.07	29.31	1.17	30.18	1.20	28.53	1.17	24.75	1.08	19.82	0.95	14.92	0.80	11.05	0.65	8.74	0.55	8.26	0.51
	9.80	8.17	0.52	9.43	0.56	12.28	0.66	16.41	0.80	21.21	0.96	25.70	1.10	28.80	1.20	29.66	1.23	28.05	1.20	24.34	1.11	19.51	0.98	14.69	0.82	10.89	0.68	8.61	0.57	8.12	0.53
	10.12	8.31	0.40	9.58	0.43	12.51	0.51	16.82	0.63	21.89	0.76	26.68	0.88	30.02	0.96	30.99	0.99	29.32	0.96	25.42	0.89	20.31	0.78	15.23	0.66	11.22	0.54	8.82	0.45	8.27	0.41
	10.65	8.18	0.36	9.40	0.38	12.28	0.45	16.54	0.56	21.58	0.67	26.37	0.77	29.72	0.84	30.72	0.86	29.09	0.84	25.24	0.77	20.17	0.68	15.12	0.57	11.13	0.46	8.72	0.39	8.15	0.36
	11.19	7.79	0.40	8.92	0.43	11.64	0.51	15.69	0.63	20.48	0.76	25.03	0.87	28.24	0.95	29.21	0.97	27.69	0.95	24.05	0.88	19.25	0.77	14.45	0.64	10.64	0.52	8.33	0.44	7.76	0.40
	11.76	7.16	0.48	8.17	0.51	10.63	0.61	14.32	0.75	18.67	0.90	22.82	1.03	25.75	1.12	26.65	1.15	25.29	1.12	22.00	1.04	17.65	0.91	13.29	0.76	9.81	0.62	7.68	0.52	7.14	0.48
	12.35	6.16	0.58	7.00	0.62	9.07	0.73	12.16	0.90	15.80	1.08	19.26	1.24	21.70	1.35	22.46	1.39	21.35	1.35	18.63	1.25	15.01	1.09	11.37	0.91	8.44	0.75	6.63	0.63	6.15	0.58
	12.96	5.52	0.50	6.25	0.53	8.13	0.63	11.02	0.78	14.48	0.94	17.82	1.08	20.22	1.18	21.00	1.21	19.97	1.18	17.39	1.09	13.95	0.95	10.48	0.80	7.71	0.65	6.00	0.54	5.51	0.50
	13.66	2.88	0.75	3.24	0.80	4.19	0.95	5.62	1.16	7.33	1.38	8.96	1.58	10.11	1.72	10.49	1.76	9.99	1.72	8.75	1.59	7.07	1.40	5.37	1.18	3.99	0.96	3.13	0.81	2.88	0.75
	14.16	0.06	0.86	0.06	0.92	0.08	1.09	0.10	1.33	0.12	1.59	0.15	1.82	0.16	1.98	0.17	2.03	0.16	1.98	0.15	1.83	0.12	1.61	0.10	1.35	0.08	1.11	0.06	0.93	0.06	0.86
	0.00	11.02	0.26	13.34	0.29	17.76	0.35	23.79	0.44	30.54	0.55	36.67	0.64	40.66	0.70	41.39	0.72	38.59	0.70	32.88	0.64	25.74	0.55	18.88	0.44	13.74	0.35	10.95	0.29	10.85	0.26
	0.50	10.85	0.35	13.11	0.37	17.44	0.44	23.37	0.54	30.01	0.65	36.04	0.76	39.98	0.82	40.71	0.85	37.98	0.83	32.38	0.76	25.37	0.66	18.62	0.55	13.56	0.45	10.80	0.37	10.68	0.35
	1.00	10.74	0.38	12.95	0.40	17.22	0.47	23.07	0.58	29.66	0.70	35.65	0.80	39.58	0.87	40.34	0.90	37.66	0.87	32.12	0.80	25.18	0.70	18.49	0.59	13.47	0.48	10.72	0.41	10.58	0.38
	1.50	10.66	0.38	12.83	0.40	17.03	0.47	22.83	0.58	29.37	0.70	35.34	0.81	39.27	0.88	40.05	0.90	37.42	0.88	31.94	0.81	25.06	0.71	18.42	0.60	13.42	0.49	10.67	0.41	10.50	0.38
	2.00	10.59	0.38	12.71	0.40	16.87	0.48	22.63	0.59	29.13	0.70	35.09	0.81	39.03	0.88	39.84	0.91	37.25	0.88	31.83	0.82	24.99	0.72	18.38	0.60	13.40	0.49	10.64	0.41	10.44	0.38
	2.50	10.53	0.38	12.60	0.40	16.71	0.47	22.42	0.58	28.90	0.69	34.84	0.80	38.79	0.87	39.64	0.90	37.09	0.87	31.71	0.81	24.92	0.71	18.34	0.59	13.38	0.49	10.62	0.41	10.38	0.38
	3.00	10.46	0.37	12.50	0.39	16.56	0.46	22.22	0.57	28.66	0.69	34.59	0.79	38.55	0.86	39.42	0.89	36.91	0.87	31.59	0.80	24.84	0.70	18.31	0.59	13.35	0.48	10.59	0.40	10.33	0.37
	3.50	10.39	0.37	12.38	0.40	16.39	0.47	22.00	0.57	28.40	0.69	34.31	0.79	38.27	0.87	39.16	0.89	36.70	0.87	31.44	0.80	24.75	0.70	18.26	0.59	13.32	0.48	10.55	0.41	10.26	0.38

Line #3	4.00	10.31	0.38	12.25	0.40	16.20	0.47	21.75	0.58	28.10	0.70	33.97	0.80	37.92	0.88	38.84	0.90	36.43	0.88	31.23	0.81	24.62	0.71	18.18	0.60	13.27	0.49	10.51	0.41	10.19	0.38
	4.50	10.22	0.39	12.11	0.41	16.00	0.48	21.48	0.60	27.76	0.72	33.59	0.82	37.52	0.90	38.46	0.93	36.10	0.90	30.98	0.83	24.44	0.73	18.08	0.61	13.21	0.50	10.45	0.42	10.10	0.39
	5.00	10.17	0.39	12.02	0.41	15.87	0.48	21.33	0.59	27.60	0.71	33.44	0.82	37.40	0.89	38.37	0.92	36.04	0.90	30.95	0.83	24.44	0.73	18.08	0.61	13.21	0.51	10.44	0.43	10.06	0.39
	5.50	10.12	0.38	11.93	0.40	15.74	0.47	21.17	0.58	27.42	0.69	33.26	0.80	37.23	0.87	38.23	0.90	35.95	0.87	30.90	0.81	24.43	0.71	18.09	0.60	13.22	0.49	10.43	0.42	10.02	0.38
	6.00	9.97	0.40	11.72	0.42	15.42	0.50	20.72	0.62	26.83	0.74	32.54	0.85	36.43	0.93	37.42	0.96	35.22	0.94	30.32	0.86	24.01	0.76	17.82	0.63	13.05	0.52	10.30	0.44	9.87	0.40
	6.51	9.75	0.44	11.42	0.47	15.00	0.56	20.13	0.68	26.05	0.82	31.58	0.94	35.36	1.03	36.33	1.06	34.23	1.03	29.51	0.95	23.42	0.83	17.43	0.70	12.79	0.57	10.10	0.48	9.66	0.44
	6.82	9.70	0.45	11.35	0.48	14.91	0.56	20.03	0.69	25.95	0.83	31.50	0.95	35.31	1.03	36.31	1.06	34.22	1.04	29.50	0.96	23.41	0.84	17.42	0.71	12.78	0.59	10.08	0.50	9.61	0.46
	7.02	9.72	0.43	11.37	0.45	14.94	0.54	20.08	0.66	26.04	0.79	31.63	0.91	35.47	0.99	36.49	1.02	34.39	1.00	29.65	0.93	23.53	0.81	17.50	0.69	12.84	0.56	10.12	0.47	9.64	0.43
	7.24	9.75	0.36	11.40	0.37	14.98	0.45	20.13	0.57	26.10	0.71	31.68	0.83	35.50	0.91	36.50	0.95	34.40	0.93	29.67	0.85	23.56	0.74	17.55	0.61	12.88	0.49	10.15	0.40	9.67	0.36
	7.47	9.72	0.26	11.37	0.27	14.93	0.34	20.05	0.45	25.97	0.58	31.48	0.71	35.23	0.81	36.19	0.85	34.09	0.84	29.40	0.76	23.36	0.65	17.41	0.52	12.80	0.39	10.11	0.30	9.64	0.26
	7.70	9.59	0.26	11.19	0.28	14.69	0.34	19.71	0.42	25.53	0.52	30.97	0.62	34.71	0.69	35.71	0.72	33.67	0.70	29.05	0.64	23.07	0.54	17.19	0.43	12.63	0.34	9.97	0.28	9.50	0.26
	7.94	9.41	0.33	10.97	0.36	14.37	0.42	19.26	0.51	24.92	0.61	30.22	0.70	33.86	0.76	34.84	0.79	32.86	0.76	28.38	0.69	22.57	0.60	16.84	0.49	12.39	0.40	9.79	0.34	9.32	0.32
	8.17	9.23	0.39	10.75	0.42	14.07	0.50	18.85	0.61	24.37	0.73	29.54	0.83	33.09	0.90	34.05	0.93	32.14	0.90	27.77	0.82	22.11	0.72	16.51	0.60	12.16	0.49	9.62	0.42	9.15	0.39
	8.40	9.05	0.44	10.53	0.47	13.76	0.56	18.42	0.69	23.79	0.82	28.83	0.94	32.30	1.03	33.24	1.06	31.38	1.03	27.14	0.95	21.63	0.83	16.17	0.69	11.93	0.56	9.44	0.47	8.98	0.44
	8.68	8.79	0.47	10.21	0.51	13.32	0.61	17.79	0.74	22.96	0.89	27.80	1.02	31.13	1.10	32.05	1.13	30.27	1.10	26.20	1.02	20.90	0.89	15.66	0.74	11.57	0.61	9.17	0.51	8.72	0.48
	8.96	8.63	0.47	10.01	0.50	13.05	0.60	17.44	0.74	22.52	0.88	27.28	1.01	30.58	1.09	31.49	1.12	29.75	1.09	25.76	1.01	20.56	0.88	15.41	0.74	11.39	0.60	9.02	0.50	8.56	0.47
	9.25	8.72	0.31	10.10	0.33	13.19	0.41	17.67	0.51	22.89	0.63	27.81	0.72	31.22	0.78	32.18	0.80	30.41	0.78	26.31	0.71	20.97	0.62	15.68	0.51	11.57	0.40	9.13	0.33	8.65	0.31
	9.57	8.65	0.27	10.01	0.29	13.08	0.34	17.54	0.42	22.74	0.50	27.63	0.57	31.04	0.62	32.01	0.64	30.26	0.62	26.19	0.56	20.88	0.49	15.62	0.40	11.52	0.33	9.09	0.28	8.59	0.27
	10.39	8.23	0.36	9.48	0.38	12.38	0.46	16.61	0.57	21.57	0.69	26.27	0.80	29.56	0.87	30.52	0.90	28.89	0.87	25.04	0.81	19.98	0.70	14.96	0.59	11.03	0.47	8.69	0.39	8.17	0.36
	11.25	7.45	0.44	8.55	0.47	11.12	0.57	14.90	0.70	19.32	0.84	23.52	0.97	26.46	1.06	27.35	1.09	25.93	1.06	22.53	0.97	18.04	0.85	13.56	0.71	10.02	0.57	7.90	0.48	7.41	0.44
	11.92	6.28	0.58	7.17	0.62	9.26	0.74	12.34	0.91	15.92	1.09	19.30	1.25	21.67	1.36	22.39	1.40	21.26	1.36	18.54	1.25	14.94	1.10	11.31	0.92	8.43	0.75	6.67	0.63	6.25	0.58
	12.50	5.60	0.46	6.37	0.49	8.25	0.59	11.05	0.72	14.35	0.86	17.50	0.99	19.73	1.07	20.43	1.10	19.42	1.07	16.92	0.98	13.60	0.86	10.27	0.72	7.61	0.59	5.99	0.49	5.57	0.46
	13.04	3.00	0.63	3.39	0.68	4.28	0.83	5.54	1.04	6.96	1.27	8.26	1.47	9.14	1.61	9.39	1.66	8.96	1.61	7.92	1.47	6.53	1.27	5.10	1.04	3.91	0.83	3.17	0.68	2.99	0.63
	13.56	0.28	0.69	0.31	0.75	0.36	0.90	0.39	1.12	0.41	1.36	0.40	1.56	0.37	1.70	0.35	1.75	0.34	1.70	0.34	1.56	0.34	1.36	0.32	1.12	0.30	0.90	0.27	0.75	0.28	0.69
	13.66	0.02	0.53	0.02	0.58	0.03	0.71	0.03	0.90	0.02	1.11	0.02	1.29	0.01	1.42	0.01	1.46	0.01	1.42	0.01	1.29	0.02	1.11	0.02	0.90	0.02	0.71	0.02	0.58	0.02	0.53
Line #4	0.00	11.02	0.26	13.34	0.29	17.76	0.35	23.79	0.44	30.54	0.55	36.67	0.64	40.66	0.70	41.39	0.72	38.59	0.70	32.88	0.64	25.74	0.55	18.88	0.44	13.74	0.35	10.95	0.29	10.85	0.26
	0.50	10.85	0.35	13.11	0.37	17.44	0.44	23.37	0.54	30.01	0.65	36.04	0.76	39.98	0.82	40.71	0.85	37.98	0.83	32.38	0.76	25.37	0.66	18.62	0.55	13.56	0.45	10.80	0.37	10.68	0.35
	1.00	10.74	0.38	12.95	0.40	17.22	0.47	23.07	0.58	29.66	0.70	35.65	0.80	39.58	0.87	40.34	0.90	37.66	0.87	32.12	0.80	25.18	0.70	18.49	0.59	13.47	0.48	10.72	0.41	10.58	0.38
	1.50	10.66	0.38	12.83	0.40	17.03	0.47	22.83	0.58	29.37	0.70	35.34	0.81	39.27	0.88	40.05	0.90	37.42	0.88	31.94	0.81	25.06	0.71	18.42	0.60	13.42	0.49	10.67	0.41	10.50	0.38
	2.00	10.59	0.38	12.71	0.40	16.87	0.48	22.63	0.59	29.13	0.70	35.09	0.81	39.03	0.88	39.84	0.91	37.25	0.88	31.83	0.82	24.99	0.72	18.38	0.60	13.40	0.49	10.64	0.41	10.44	0.38
	2.50	10.53	0.38	12.60	0.40	16.71	0.47	22.42	0.58	28.90	0.69	34.84	0.80	38.79	0.87	39.64	0.90	37.09	0.87	31.71	0.81	24.92	0.71	18.34	0.59	13.38	0.49	10.62	0.41	10.38	0.38
	3.00	10.46	0.37	12.50	0.39	16.56	0.46	22.22	0.57	28.66	0.69	34.59	0.79	38.55	0.86	39.42	0.89	36.91	0.87	31.59	0.80	24.84	0.70	18.31	0.59	13.35	0.48	10.59	0.40	10.33	0.37
	3.50	10.39	0.37	12.38	0.40	16.39	0.47	22.00	0.57	28.40	0.69	34.31	0.79	38.27	0.87	39.16	0.89	36.70	0.87	31.44	0.80	24.75	0.70	18.26	0.59	13.32	0.48	10.55	0.41	10.26	0.38
	4.00	10.31	0.38	12.25	0.40	16.20	0.47	21.75	0.58	28.10	0.70	33.97	0.80	37.92	0.88	38.84	0.90	36.43	0.88	31.23	0.81	24.62	0.71	18.18	0.60	13.27	0.49	10.51	0.41	10.19	0.38
	4.50	10.22	0.39	12.11	0.41	16.00	0.48	21.48	0.60	27.76	0.72	33.59	0.82	37.52	0.90	38.46	0.93	36.10	0.90	30.98	0.83	24.44	0.73	18.08	0.61	13.21	0.50	10.45	0.42	10.10	0.39
	5.00	10.17	0.39	12.02	0.41	15.87	0.48	21.33	0.59	27.60	0.71	33.44	0.82	37.40	0.89	38.37	0.92	36.04	0.90	30.95	0.83	24.44	0.73	18.08	0.61	13.21	0.51	10.44	0.43	10.06	0.39
	5.50	10.12	0.38	11.93	0.40	15.74	0.47	21.17	0.58	27.42	0.69	33.26	0.80	37.23	0.87	38.23	0.90	35.95	0.87	30.90	0.81	24.43	0.71	18.09	0.60	13.22	0.49	10.43	0.42	10.02	0.38
	6.00	9.97	0.40	11.72	0.42	15.42	0.50	20.72	0.62	26.83	0.74	32.54	0.85	36.43	0.93	37.42	0.96	35.22	0.94	30.32	0.86	24.01	0.76	17.82	0.63	13.05	0.52	10.30	0.44	9.87	0.40
	6.51	9.75	0.44	11.42	0.47	15.00	0.56	20.13	0.68	26.05	0.82	31.58	0.94	35.36	1.03	36.33	1.06	34.23	1.03	29.51	0.95	23.42	0.83	17.43	0.70	12.79	0.57	10.10	0.48	9.66	0.44
	6.82	9.70	0.45	11.35	0.48	14.91	0.56	20.03	0.69	25.95	0.83	31.50	0.95	35.31	1.03	36.31	1.06	34.22	1.04	29.50	0.96	23.41	0.84	17.42	0.71	12.78	0.59	10.08	0.50	9.61	0.46
	7.02	9.72	0.43	11.37	0.45	14.94	0.54	20.08	0.66	26.04	0.79	31.63	0.91	35.47	0.99	36.49	1.02	34.39	1.00	29.65	0.93	23.53	0.81	17.50	0.69	12.84	0.56	10.12	0.47	9.64	0.43
	7.24	9.75	0.36	11.40	0.37	14.98	0.45	20.13	0.57	26.10	0.71	31.68	0.83	35.50	0.91	36.50	0.95	34.40	0.93	29.67	0.85	23.56	0.74	17.55	0.61	12.88	0.49	10.15	0.40	9.67	0.36
	7.47	9.72	0.26	11.37	0.27	14.93	0.34	20.05	0.45	25.97	0.58	31.48	0.71	35.23	0.81	36.19	0.85	34.09	0.84	29.40	0.76	23.36	0.65	17.41	0.52	12.80	0.39	10.11	0.30	9.64	0.26
	7.70	9.59	0.26	11.19	0.28	14.69	0.34	19.71	0.42	25.53	0.52	30.97	0.62	34.71	0.69	35.71	0.72	33.67	0.70	29.05	0.64	23.07	0.54	17.19	0.43	12.63	0.34	9.97	0.28	9.50	0.26
	7.94	9.41	0.33	10.97	0.36	14.37	0.42	19.26	0.51	24.92	0.61	30.22	0.70	33.86	0.76	34.84	0.79	32.86	0.76	28.38	0.69	22.57	0.60	16.84	0.49	12.39	0.40	9.79	0.34	9.32	0.32
	8.17	9.23	0.39	10.75	0.42	14.07	0.50	18.85	0.61	24.37	0.73	29.54	0.83	33.09	0.90	34.05	0.93	32.14	0.90	27.77	0.82	22.11	0.72	16.51	0.60	12.16	0.49	9.62	0.42	9.15	0.39
	8.40	9.05	0.44	10.53	0.47	13.76	0.56	18.42	0.69	23.79	0.82	28.83	0.94	32.30	1.03	33.24	1.06	31.38	1.03	27.14	0.95	21.63	0.83	16.17	0.69	11.93	0.56	9.44	0.47	8.98	0.44
	8.68	8.79	0.47	10.21	0.51	13.32	0.61	17.79	0.74	22.96	0.89	27.80	1.02	31.13	1.10	32.05	1.13	30.27	1.10	26.20	1.02	20.90	0.89	15.66	0.74	11.57	0.61	9.17	0.51	8.72	0.48
	8.96	8.63	0.47	10.01	0.50	13.05	0.60	17.44	0.74	22.52	0.88	27.28	1.01	30.58	1.09	31.49	1.12	29.75	1.09	25.76	1.01	20.56	0.88	15.41	0.74	11.39	0.60	9.02	0.50	8.56	0.47
	9.19	8.51	0.07	9.86	0.07	12.84	0.09	17.13	0.10	22.08	0.10	26.72	0.10	29.91	0.10	30.78	0.09	29.09	0.09	25.21	0.09	20.14	0.08	15.12	0.08	11.20	0.07	8.88	0.06	8.44	0.07
	9.43	8.47	0.35	9.81	0.38	12.79	0.45	17.09	0.56	22.09	0.69	26.80	0.80	30.06	0.88	30.98	0.90	29.28	0.88	25.35	0.80	20.23	0.69	15.16	0.56	11.20	0.45	8.86	0.37	8.40	0.35
	9.93	8.00	0.41	9.24	0.44	12.04	0.53	16.10	0.65	20.84	0.77	25.32	0.89	28.44	0.96	29.34	0.99	27.75	0.96	24.04	0.89	19.19	0.77	14.38	0.65	10.63	0.53	8.40	0.44	7.94	0.41
	10.43	7.45	0.41	8.58	0.45	11.16	0.54	14.93	0.67	19.32	0.82	23.47	0.94	26.38	1.03	27.22	1.06	25.77	1.03	22.35	0.94	17.86	0.82	13.41	0.68	9.92	0.54	7.84	0.45	7.39	0.41
	10.94	6.80	0.49	7.81	0.53	10.14	0.64	13.55	0.79	17.53	0.95	21.31	1.09	23.95	1.19	24.73	1.22	23.43	1.19	20.35	1.10	16.29	0.96	12.25	0.79	9.08	0.64	7.17	0.53	6.75	0.49
	11.44	5.98	0.55	6.85	0.59	8.87	0.71	11.83	0.87	15.28	1.06	18.55	1.21	20.84	1.32	21.53	1.36	20.42	1.33	17.76	1.22	14.26	1.06	10.76	0.88	8.00	0.71	6.33	0.59	5.95	0.55
	11.94	5.22	0.48	5.96	0.52	7.72	0.63	10.33	0.79	13.40	0.96	16.33	1.12	18.40	1.22	19.05	1.26	18.08	1.22	15.73	1.12	12.62	0.97	9.51	0.80	7.05	0.64	5.56	0.53	5.19	0.48
	12.45	4.84	0.43	5.51	0.46	7.20	0.54	9.74	0.65	12.79	0.78	15.75	0.88	17.87	0.95	18.57	0.98	17.63	0.95	15.30	0.88	12.21	0.77	9.12	0.65	6.69	0.54	5.21	0.46	4.82	0.43
	12.96	3.61	0.58	4.10	0.62	5.36	0.75	7.27	0.92	9.59	1.10	11.84	1.26	13.48	1.36	14.02	1.40	13.33	1.37	11.56	1.26	9.21	1.11	6.87	0.93	5.02	0.76	3.90	0.63	3.59	0.58
	13.52	1.25	0.75	1.41	0.80	1.85	0.95	2.52	1.17	3.32	1.39	4.11	1.59	4.68	1.73	4.87	1.78	4.63	1.73	4.02	1.60	3.21	1.40	2.39	1.18	1.75	0.96	1.35	0.81	1.24	0.75
	13.63	0.60	0.81	0.69	0.86	0.90	1.02	1.22	1.25	1.61	1.49	2.00	1.69	2.27	1.84	2.37	1.89	2.25	1.84	1.95	1.70	1.56	1.49	1.16	1.26	0.85	1.03	0.66	0.87	0.60	0.81
Line #5	0.00	11.02	0.26	13.34	0.29	17.76	0.35	23.79	0.44	30.54	0.55	36.67	0.64	40.66	0.70	41.39	0.72	38.59	0.70	32.88	0.64	25.74	0.55	18.88	0.44	13.74	0.35	10.95	0.29	10.85	0.26
	0.50	10.85	0.35	13.11	0.37	17.44	0.44	23.37	0.54	30.01	0.65	36.04	0.76	39.98	0.82	40.71	0.85	37.98	0.83	32.38	0.76	25.37	0.66	18.62	0.55	13.56	0.45	10.80	0.37	10.68	0.35
	1.00	10.74	0.38	12.95	0.40	17.22	0.47	23.07	0.58	29.66	0.70	35.65	0.80	39.58	0.87	40.34	0.90	37.66	0.87	32.12	0.80	25.18	0.70	18.49	0.59	13.47	0.48	10.72	0.41	10.58	0.38
	1.50	10.66	0.38	12.83	0.40	17.03	0.47	22.83	0.58	29.37	0.70	35.34	0.81	39.27	0.88	40.05	0.90	37.42	0.88	31.94	0.81	25.06	0.71	18.42	0.60	13.42	0.49	10.67	0.41	10.50	0.38
	2.00	10.59	0.38	12.71	0.40	16.87	0.48	22.63	0.59	29.13	0.70	35.09	0.81	39.03	0.88	39.84	0.91	37.25	0.88	31.83	0.82	24.99	0.72	18.38	0.60	13.40	0.49	10.64	0.41	10.44	0.38
	2.50	10.53	0.38	12.60	0.40	16.71	0.47	22.42	0.58	28.90	0.69	34.84	0.80	38.79	0.87	39.64	0.90	37.09	0.87	31.71	0.81	24.92	0.71	18.34	0.59	13.38	0.49	10.62	0.41	10.38	0.38
	3.00	10.46	0.37	12.50	0.39	16.56	0.46	22.22	0.57	28.66	0.69	34.59	0.79	38.55	0.86	39.42	0.89	36.91	0.87	31.59	0.80	24.84	0.70	18.31	0.59	13.35	0.48	10.59	0.40	10.33	0.37
	3.50	10.39	0.37	12.38	0.40	16.39	0.47	22.00	0.57	28.40	0.69	34.31	0.79	38.27	0.87	39.16	0.89	36.70	0.87	31.44	0.80	24.75	0.70	18.26	0.59	13.32	0.48	10.55	0.41	10.26	0.38
	4.00	10.31	0.38	12.25	0.40	16.20	0.47	21.75	0.58	28.10	0.70	33.97	0.80	37.92	0.88	38.84	0.90	36.43	0.88	31.23	0.81	24.62	0.71	18.18	0.60	13.27	0.49	10.51	0.41	10.19	0.38
	4.50	10.22	0.39	12.11	0.41	16.00	0.48	21.48	0.60	27.76	0.72	33.59	0.82	37.52	0.90	38.46	0.93	36.10	0.90	30.98	0.83	24.44	0.73	18.08	0.61	13.21	0.50	10.45	0.42	10.10	0.39
	5.00	10.17	0.39	12.02	0.41	15.87	0.48	21.33	0.59	27.60	0.71	33.44	0.82	37.40	0.89	38.37	0.92	36.04	0.90	30.95	0.83	24.44	0.73	18.08	0.61	13.21	0.51	10.44	0.43	10.06	0.39
	5.56	10.04	0.17	11.86	0.19	15.64	0.21	20.99	0.24	27.13	0.26	32.81	0.28	36.66	0.29	37.58	0.29	35.31	0.28	30.34	0.26	23.98	0.24	17.77	0.21	13.01	0.19	10.30	0.17	9.93	0.17
	5.85	9.95	0.23	11.75	0.25	15.50	0.30	20.81	0.37	26.91	0.45	32.58	0.52	36.43	0.56	37.37	0.58	35.12	0.56	30.17	0.52	23.85	0.45	17.67	0.37	12.93	0.30	10.22	0.25	9.85	0.23
	6.36	9.71	0.28	11.45	0.30	15.08	0.37	20.24	0.46	26.16	0.55	31.67	0.64	35.41	0.70	36.34	0.72	34.17	0.70	29.38	0.64	23.25	0.55	17.25	0.45	12.64	0.36	9.99	0.30	9.61	0.28
	7.12	9.04	0.34	10.63	0.37	13.96	0.46	18.67	0.59	24.07	0.72	29.07	0.83	32.47	0.91	33.32	0.94	31.35	0.91	27.02	0.83	21.44	0.71	15.97	0.58	11.75	0.45	9.31	0.37	8.95	0.34
	7.96	7.80	0.45	9.13	0.49	11.93	0.61	15.87	0.77	20.37	0.94	24.52	1.08	27.32	1.18	28.02	1.22	26.39	1.18	22.81	1.07	18.19	0.92	13.63	0.75	10.09	0.59	8.03	0.49	7.72	0.45
	8.67	6.84	0.53	7.99	0.57	10.44	0.69	13.92	0.86	17.90	1.04	21.61	1.19	24.14	1.29	24.79	1.33	23.37	1.29	20.20	1.18	16.11	1.03	12.07	0.85	8.93	0.68	7.09	0.57	6.78	0.53
	9.17	6.30	0.45	7.34	0.49	9.60	0.60	12.83	0.75	16.57	0.91	20.06	1.06	22.46	1.15	23.10	1.18	21.80	1.15	18.85	1.05	15.03	0.90	11.25	0.74	8.30	0.59	6.56	0.48	6.25	0.45
	9.68	5.63	0.45	6.54	0.50	8.55	0.61	11.44	0.76	14.79	0.93	17.93	1.08	20.10	1.18	20.70	1.21	19.56	1.17	16.93	1.07	13.52	0.92	10.13	0.75	7.47	0.60	5.90	0.49	5.59	0.45
	10.18	4.91	0.29	5.67	0.32	7.40	0.41	9.91	0.53	12.83	0.66	15.59	0.79	17.51	0.88	18.06	0.91	17.08	0.87	14.80	0.78	11.82	0.65	8.87	0.51	6.55	0.39	5.17	0.31	4.87	0.29
	10.69	3.37	0.39	3.88	0.43	5.03	0.55	6.69	0.71	8.61	0.89	10.40	1.05	11.64	1.16	11.99	1.20	11.36	1.16	9.88	1.04	7.95	0.87	6.01	0.69	4.47	0.53	3.55	0.42	3.35	0.39
	11.24	1.13	0.05	1.30	0.06	1.67	0.07	2.20	0.09	2.80	0.12	3.36	0.15	3.74	0.16	3.85	0.17	3.65	0.16	3.19	0.14	2.58	0.12	1.97	0.09	1.48	0.07	1.19	0.05	1.13	0.05

RAA - Simulation - Raw Data

Table A7.6: RAA2 - Finer Resolution - 30% Growth

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
	0.00	11.02	0.26	13.30	0.29	17.72	0.35	23.82	0.44	30.74	0.55	37.07	0.64	41.14	0.70	41.97	0.72	39.13	0.70	33.46	0.64	26.16	0.55	19.13	0.44	13.90	0.35	11.17	0.29	11.02	0.26
	0.50	10.85	0.34	13.08	0.37	17.41	0.44	23.41	0.54	30.22	0.65	36.45	0.75	40.47	0.82	41.31	0.85	38.53	0.82	32.97	0.75	25.80	0.65	18.88	0.54	13.72	0.44	11.02	0.37	10.85	0.34
	1.00	10.74	0.38	12.92	0.40	17.19	0.48	23.12	0.58	29.87	0.70	36.07	0.80	40.09	0.87	40.95	0.90	38.22	0.87	32.72	0.80	25.61	0.70	18.75	0.59	13.63	0.48	10.93	0.41	10.75	0.38
	1.50	10.66	0.38	12.79	0.41	17.01	0.48	22.88	0.59	29.59	0.71	35.76	0.81	39.78	0.88	40.67	0.91	37.99	0.88	32.54	0.82	25.49	0.71	18.67	0.60	13.58	0.49	10.88	0.41	10.66	0.38
	2.00	10.59	0.37	12.68	0.39	16.85	0.47	22.67	0.58	29.35	0.69	35.51	0.80	39.54	0.87	40.46	0.90	37.81	0.87	32.42	0.80	25.41	0.70	18.62	0.59	13.55	0.48	10.84	0.40	10.59	0.37
	2.50	10.52	0.37	12.57	0.39	16.69	0.47	22.48	0.57	29.12	0.69	35.27	0.79	39.30	0.86	40.25	0.89	37.65	0.87	32.30	0.80	25.34	0.70	18.58	0.59	13.53	0.48	10.81	0.40	10.53	0.37
	3.00	10.46	0.37	12.46	0.39	16.53	0.46	22.27	0.57	28.88	0.68	35.01	0.78	39.05	0.86	40.02	0.88	37.46	0.86	32.16	0.79	25.25	0.69	18.54	0.58	13.50	0.48	10.77	0.40	10.47	0.37
	3.50	10.39	0.37	12.35	0.39	16.37	0.46	22.06	0.57	28.63	0.68	34.74	0.79	38.78	0.86	39.78	0.89	37.26	0.86	32.02	0.80	25.16	0.70	18.49	0.58	13.47	0.48	10.73	0.40	10.40	0.37
	4.00	10.30	0.37	12.22	0.39	16.18	0.47	21.81	0.57	28.33	0.69	34.40	0.79	38.44	0.87	39.46	0.89	36.99	0.87	31.81	0.80	25.02	0.70	18.40	0.59	13.42	0.48	10.68	0.40	10.31	0.37
	4.50	10.21	0.38	12.08	0.40	15.98	0.48	21.53	0.59	27.98	0.71	34.00	0.82	38.02	0.89	39.06	0.92	36.64	0.89	31.54	0.83	24.84	0.72	18.29	0.60	13.35	0.50	10.61	0.42	10.22	0.38
	5.00	10.16	0.39	11.99	0.41	15.86	0.48	21.39	0.59	27.84	0.70	33.87	0.81	37.91	0.88	38.99	0.91	36.61	0.89	31.53	0.82	24.84	0.72	18.30	0.61	13.36	0.50	10.60	0.42	10.17	0.39
	5.50	10.12	0.38	11.90	0.40	15.73	0.47	21.23	0.57	27.66	0.69	33.70	0.79	37.76	0.87	38.86	0.89	36.52	0.87	31.49	0.80	24.83	0.71	18.31	0.59	13.36	0.49	10.58	0.41	10.13	0.38
	6.00	9.96	0.40	11.68	0.42	15.41	0.50	20.79	0.61	27.07	0.74	32.98	0.85	36.96	0.92	38.06	0.95	35.80	0.93	30.91	0.86	24.41	0.75	18.03	0.63	13.19	0.51	10.44	0.43	9.97	0.40
	6.51	9.74	0.44	11.39	0.47	14.99	0.55	20.20	0.68	26.30	0.81	32.04	0.93	35.90	1.02	36.99	1.05	34.82	1.02	30.11	0.94	23.83	0.82	17.64	0.69	12.93	0.57	10.23	0.48	9.75	0.44
	6.82	9.69	0.45	11.32	0.48	14.90	0.56	20.10	0.68	26.20	0.82	31.96	0.94	35.86	1.02	36.97	1.05	34.82	1.02	30.10	0.95	23.82	0.83	17.63	0.70	12.91	0.58	10.21	0.49	9.71	0.45
	7.03	9.68	0.44	11.31	0.45	14.89	0.53	20.10	0.66	26.22	0.79	31.98	0.91	35.87	1.00	36.98	1.03	34.86	1.01	30.16	0.93	23.82	0.82	17.63	0.70	12.92	0.57	10.21	0.48	9.69	0.44
	7.23	9.70	0.38	11.32	0.38	14.91	0.45	20.14	0.57	26.28	0.70	32.05	0.83	35.97	0.93	37.07	0.96	34.97	0.94	30.27	0.85	23.88	0.76	17.69	0.64	12.96	0.50	10.23	0.41	9.71	0.37
Line #1	7.45	9.70	0.21	11.33	0.19	14.92	0.22	20.13	0.30	26.23	0.42	32.00	0.51	35.99	0.55	37.03	0.62	34.95	0.60	30.26	0.48	23.84	0.46	17.71	0.36	12.97	0.25	10.23	0.21	9.71	0.19
	7.65	9.70	0.18	11.33	0.16	14.90	0.18	20.06	0.27	26.05	0.40	31.84	0.47	35.90	0.45	36.84	0.55	34.83	0.51	30.14	0.41	23.74	0.42	17.70	0.30	12.96	0.21	10.21	0.18	9.70	0.16
	7.85	9.66	0.20	11.27	0.19	14.79	0.23	19.83	0.33	25.73	0.45	31.56	0.49	35.54	0.50	36.47	0.56	34.55	0.52	29.76	0.47	23.56	0.44	17.60	0.31	12.86	0.25	10.15	0.21	9.65	0.19
	8.05	9.52	0.28	11.08	0.29	14.49	0.35	19.43	0.45	25.27	0.55	30.91	0.63	34.67	0.67	35.74	0.71	33.72	0.68	29.03	0.61	23.14	0.55	17.21	0.45	12.61	0.36	10.00	0.30	9.52	0.27
	8.26	9.29	0.39	10.77	0.41	14.06	0.48	18.85	0.59	24.48	0.71	29.82	0.81	33.40	0.87	34.49	0.90	32.51	0.87	28.00	0.79	22.38	0.71	16.68	0.58	12.25	0.48	9.74	0.41	9.27	0.38
	8.46	9.14	0.43	10.59	0.45	13.81	0.53	18.51	0.65	24.05	0.79	29.29	0.90	32.80	0.98	33.89	1.02	31.96	0.98	27.53	0.90	22.01	0.80	16.42	0.66	12.07	0.54	9.59	0.46	9.12	0.43
	8.66	9.02	0.45	10.43	0.47	13.60	0.55	18.22	0.68	23.66	0.82	28.83	0.94	32.30	1.01	33.37	1.05	31.48	1.02	27.12	0.93	21.70	0.83	16.20	0.69	11.91	0.57	9.47	0.48	9.00	0.44
	8.87	8.89	0.46	10.27	0.48	13.39	0.57	17.93	0.70	23.29	0.84	28.38	0.97	31.80	1.05	32.86	1.09	31.01	1.06	26.73	0.97	21.40	0.86	15.98	0.71	11.75	0.59	9.35	0.49	8.87	0.45
	9.07	8.76	0.46	10.11	0.49	13.17	0.58	17.63	0.71	22.91	0.86	27.91	0.99	31.27	1.07	32.33	1.11	30.52	1.08	26.31	0.99	21.08	0.88	15.75	0.73	11.59	0.60	9.22	0.50	8.74	0.46
	9.60	8.38	0.51	9.63	0.54	12.52	0.64	16.75	0.78	21.74	0.94	26.49	1.07	29.69	1.17	30.72	1.20	29.02	1.17	25.05	1.08	20.11	0.95	15.05	0.80	11.11	0.65	8.83	0.55	8.36	0.51
	9.80	8.24	0.52	9.46	0.55	12.28	0.65	16.43	0.80	21.34	0.96	26.02	1.10	29.16	1.20	30.19	1.24	28.53	1.21	24.64	1.11	19.79	0.98	14.82	0.82	10.94	0.67	8.69	0.57	8.22	0.52
	10.49	7.73	0.38	8.86	0.40	11.49	0.46	15.36	0.55	19.95	0.64	24.33	0.72	27.28	0.77	28.24	0.80	26.71	0.78	23.08	0.72	18.55	0.64	13.90	0.54	10.28	0.46	8.17	0.40	7.71	0.38
	11.22	7.15	0.42	8.17	0.44	10.58	0.53	14.16	0.65	18.41	0.78	22.49	0.89	25.25	0.97	26.18	1.00	24.78	0.98	21.43	0.90	17.23	0.79	12.93	0.66	9.56	0.54	7.58	0.45	7.13	0.42
	12.24	6.06	0.48	6.88	0.51	8.89	0.61	11.88	0.75	15.46	0.90	18.90	1.04	21.25	1.13	22.05	1.17	20.91	1.14	18.14	1.05	14.63	0.92	11.02	0.76	8.15	0.62	6.46	0.52	6.04	0.48
	12.75	5.29	0.51	5.99	0.55	7.72	0.66	10.30	0.82	13.39	0.99	16.36	1.15	18.40	1.25	19.10	1.29	18.14	1.26	15.76	1.16	12.74	1.01	9.63	0.84	7.14	0.68	5.65	0.56	5.28	0.51
	13.15	4.60	0.58	5.19	0.62	6.67	0.74	8.90	0.92	11.58	1.11	14.16	1.27	15.93	1.39	16.55	1.43	15.73	1.40	13.68	1.28	11.08	1.13	8.38	0.94	6.23	0.77	4.93	0.63	4.58	0.58
	13.61	4.19	0.53	4.72	0.56	6.12	0.66	8.28	0.80	10.93	0.95	13.53	1.09	15.35	1.18	16.01	1.21	15.23	1.18	13.19	1.09	10.60	0.96	7.94	0.81	5.82	0.67	4.54	0.57	4.18	0.53
	14.19	2.06	0.69	2.32	0.74	3.00	0.87	4.07	1.05	5.39	1.25	6.69	1.43	7.60	1.55	7.94	1.59	7.56	1.55	6.55	1.43	5.27	1.27	3.94	1.07	2.88	0.88	2.24	0.74	2.06	0.69
	0.00	11.02	0.26	13.30	0.29	17.72	0.35	23.82	0.44	30.74	0.55	37.07	0.64	41.14	0.70	41.97	0.72	39.13	0.70	33.46	0.64	26.16	0.55	19.13	0.44	13.90	0.35	11.17	0.29	11.02	0.26
	0.50	10.85	0.34	13.08	0.37	17.41	0.44	23.41	0.54	30.22	0.65	36.45	0.75	40.47	0.82	41.31	0.85	38.53	0.82	32.97	0.75	25.80	0.65	18.88	0.54	13.72	0.44	11.02	0.37	10.85	0.34
	1.00	10.74	0.38	12.92	0.40	17.19	0.48	23.12	0.58	29.87	0.70	36.07	0.80	40.09	0.87	40.95	0.90	38.22	0.87	32.72	0.80	25.61	0.70	18.75	0.59	13.63	0.48	10.93	0.41	10.75	0.38
	1.50	10.66	0.38	12.79	0.41	17.01	0.48	22.88	0.59	29.59	0.71	35.76	0.81	39.78	0.88	40.67	0.91	37.99	0.88	32.54	0.82	25.49	0.71	18.67	0.60	13.58	0.49	10.88	0.41	10.66	0.38
	2.00	10.59	0.37	12.68	0.39	16.85	0.47	22.67	0.58	29.35	0.69	35.51	0.80	39.54	0.87	40.46	0.90	37.81	0.87	32.42	0.80	25.41	0.70	18.62	0.59	13.55	0.48	10.84	0.40	10.59	0.37
	2.50	10.52	0.37	12.57	0.39	16.69	0.47	22.48	0.57	29.12	0.69	35.27	0.79	39.30	0.86	40.25	0.89	37.65	0.87	32.30	0.80	25.34	0.70	18.58	0.59	13.53	0.48	10.81	0.40	10.53	0.37
	3.00	10.46	0.37	12.46	0.39	16.53	0.46	22.27	0.57	28.88	0.68	35.01	0.78	39.05	0.86	40.02	0.88	37.46	0.86	32.16	0.79	25.25	0.69	18.54	0.58	13.50	0.48	10.77	0.40	10.47	0.37
	3.50	10.39	0.37	12.35	0.39	16.37	0.46	22.06	0.57	28.63	0.68	34.74	0.79	38.78	0.86	39.78	0.89	37.26	0.86	32.02	0.80	25.16	0.70	18.49	0.58	13.47	0.48	10.73	0.40	10.40	0.37
	4.00	10.30	0.37	12.22	0.39	16.18	0.47	21.81	0.57	28.33	0.69	34.40	0.79	38.44	0.87	39.46	0.89	36.99	0.87	31.81	0.80	25.02	0.70	18.40	0.59	13.42	0.48	10.68	0.40	10.31	0.37
	4.50	10.21	0.38	12.08	0.40	15.98	0.48	21.53	0.59	27.98	0.71	34.00	0.82	38.02	0.89	39.06	0.92	36.64	0.89	31.54	0.83	24.84	0.72	18.29	0.60	13.35	0.50	10.61	0.42	10.22	0.38
	5.00	10.16	0.39	11.99	0.41	15.86	0.48	21.39	0.59	27.84	0.70	33.87	0.81	37.91	0.88	38.99	0.91	36.61	0.89	31.53	0.82	24.84	0.72	18.30	0.61	13.36	0.50	10.60	0.42	10.17	0.39
	5.50	10.12	0.38	11.90	0.40	15.73	0.47	21.23	0.57	27.66	0.69	33.70	0.79	37.76	0.87	38.86	0.89	36.52	0.87	31.49	0.80	24.83	0.71	18.31	0.59	13.36	0.49	10.58	0.41	10.13	0.38
	6.00	9.96	0.40	11.68	0.42	15.41	0.50	20.79	0.61	27.07	0.74	32.98	0.85	36.96	0.92	38.06	0.95	35.80	0.93	30.91	0.86	24.41	0.75	18.03	0.63	13.19	0.51	10.44	0.43	9.97	0.40
	6.51	9.74	0.44	11.39	0.47	14.99	0.55	20.20	0.68	26.30	0.81	32.04	0.93	35.90	1.02	36.99	1.05	34.82	1.02	30.11	0.94	23.83	0.82	17.64	0.69	12.93	0.57	10.23	0.48	9.75	0.44
	6.82	9.69	0.45	11.32	0.48	14.90	0.56	20.10	0.68	26.20	0.82	31.96	0.94	35.86	1.02	36.97	1.05	34.82	1.02	30.10	0.95	23.82	0.83	17.63	0.70	12.91	0.58	10.21	0.49	9.71	0.45
	7.03	9.68	0.44	11.31	0.45	14.89	0.53	20.10	0.66	26.22	0.79	31.98	0.91	35.87	1.00	36.98	1.03	34.86	1.01	30.16	0.93	23.82	0.82	17.63	0.70	12.92	0.57	10.21	0.48	9.69	0.44
	7.23	9.70	0.38	11.32	0.38	14.91	0.45	20.14	0.57	26.28	0.70	32.05	0.83	35.97	0.93	37.07	0.96	34.97	0.94	30.27	0.85	23.88	0.76	17.69	0.64	12.96	0.50	10.23	0.41	9.71	0.37
Line #2	7.45	9.70	0.21	11.33	0.19	14.92	0.22	20.13	0.30	26.23	0.42	32.00	0.51	35.99	0.55	37.03	0.62	34.95	0.60	30.26	0.48	23.84	0.46	17.71	0.36	12.97	0.25	10.23	0.21	9.71	0.19
	7.65	9.70	0.18	11.33	0.16	14.90	0.18	20.06	0.27	26.05	0.40	31.84	0.47	35.90	0.45	36.84	0.55	34.83	0.51	30.14	0.41	23.74	0.42	17.70	0.30	12.96	0.21	10.21	0.18	9.70	0.16
	7.85	9.66	0.20	11.27	0.19	14.79	0.23	19.83	0.33	25.73	0.45	31.56	0.49	35.54	0.50	36.47	0.56	34.55	0.52	29.76	0.47	23.56	0.44	17.60	0.31	12.86	0.25	10.15	0.21	9.65	0.19
	8.05	9.52	0.28	11.08	0.29	14.49	0.35	19.43	0.45	25.27	0.55	30.91	0.63	34.67	0.67	35.74	0.71	33.72	0.68	29.03	0.61	23.14	0.55	17.21	0.45	12.61	0.36	10.00	0.30	9.52	0.27
	8.26	9.29	0.39	10.77	0.41	14.06	0.48	18.85	0.59	24.48	0.71	29.82	0.81	33.40	0.87	34.49	0.90	32.51	0.87	28.00	0.79	22.38	0.71	16.68	0.58	12.25	0.48	9.74	0.41	9.27	0.38
	8.46	9.14	0.43	10.59	0.45	13.81	0.53	18.51	0.65	24.05	0.79	29.29	0.90	32.80	0.98	33.89	1.02	31.96	0.98	27.53	0.90	22.01	0.80	16.42	0.66	12.07	0.54	9.59	0.46	9.12	0.43
	8.66	9.02	0.45	10.43	0.47	13.60	0.55	18.22	0.68	23.66	0.82	28.83	0.94	32.30	1.01	33.37	1.05	31.48	1.02	27.12	0.93	21.70	0.83	16.20	0.69	11.91	0.57	9.47	0.48	9.00	0.44
	8.87	8.89	0.46	10.27	0.48	13.39	0.57	17.93	0.70	23.29	0.84	28.38	0.97	31.80	1.05	32.86	1.09	31.01	1.06	26.73	0.97	21.40	0.86	15.98	0.71	11.75	0.59	9.35	0.49	8.87	0.45
	9.07	8.76	0.46	10.11	0.49	13.17	0.58	17.63	0.71	22.91	0.86	27.91	0.99	31.27	1.07	32.33	1.11	30.52	1.08	26.31	0.99	21.08	0.88	15.75	0.73	11.59	0.60	9.22	0.50	8.74	0.46
	9.60	8.38	0.51	9.63	0.54	12.52	0.64	16.75	0.78	21.74	0.94	26.49	1.07	29.69	1.17	30.72	1.20	29.02	1.17	25.05	1.08	20.11	0.95	15.05	0.80	11.11	0.65	8.83	0.55	8.36	0.51
	9.80	8.24	0.52	9.46	0.55	12.28	0.65	16.43	0.80	21.34	0.96	26.02	1.10	29.16	1.20	30.19	1.24	28.53	1.21	24.64	1.11	19.79	0.98	14.82	0.82	10.94	0.67	8.69	0.57	8.22	0.52
	10.12	8.38	0.40	9.61	0.42	12.51	0.50	16.83	0.62	22.00	0.75	26.96	0.87	30.35	0.95	31.48	0.98	29.78	0.96	25.68	0.88	20.57	0.78	15.34	0.65	11.27	0.53	8.89	0.44	8.36	0.40
	10.65	8.25	0.36	9.43	0.38	12.29	0.46	16.56	0.56	21.69	0.67	26.65	0.78	30.05	0.85	31.21	0.87	29.55	0.85	25.49	0.78	20.43	0.69	15.24	0.57	11.18	0.47	8.80	0.39	8.23	0.36
	11.19	7.85	0.40	8.95	0.43	11.65	0.51	15.70	0.63	20.58	0.76	25.30	0.87	28.54	0.95	29.67	0.98	28.12	0.96	24.28	0.88	19.48	0.77	14.55	0.64	10.68	0.52	8.40	0.43	7.83	0.40
	11.76	7.22	0.47	8.20	0.51	10.64	0.60	14.33	0.74	18.76	0.89	23.06	1.03	26.02	1.12	27.06	1.16	25.68	1.13	22.21	1.04	17.86	0.91	13.38	0.76	9.84	0.62	7.74	0.51	7.20	0.47
	12.35	6.20	0.58	7.02	0.62	9.06	0.73	12.15	0.90	15.87	1.08	19.47	1.24	21.95	1.35	22.82	1.39	21.69	1.36	18.81	1.25	15.19	1.09	11.43	0.92	8.45	0.75	6.66	0.63	6.19	0.58
	12.96	5.56	0.49	6.27	0.53	8.14	0.63	11.02	0.77	14.55	0.93	18.02	1.07	20.45	1.17	21.34	1.20	20.30	1.18	17.57	1.08	14.11	0.95	10.56	0.79	7.73	0.64	6.03	0.54	5.55	0.49
	13.66	2.90	0.74	3.26	0.79	4.19	0.93	5.62	1.14	7.35	1.36	9.03	1.57	10.20	1.70	10.63	1.75	10.13	1.71	8.82	1.57	7.15	1.38	5.41	1.16	4.00	0.95	3.15	0.80	2.90	0.74
	14.16	0.07	0.87	0.08	0.92	0.10	1.09	0.13	1.33	0.16	1.59	0.18	1.83	0.20	1.98	0.21	2.04	0.20	1.99	0.18	1.83	0.16	1.61	0.13	1.36	0.10	1.11	0.08	0.93	0.07	0.86
	0.00	11.02	0.26	13.30	0.29	17.72	0.35	23.82	0.44	30.74	0.55	37.07	0.64	41.14	0.70	41.97	0.72	39.13	0.70	33.46	0.64	26.16	0.55	19.13	0.44	13.90	0.35	11.17	0.29	11.02	0.26
	0.50	10.85	0.34	13.08	0.37	17.41	0.44	23.41	0.54	30.22	0.65	36.45	0.75	40.47	0.82	41.31	0.85	38.53	0.82	32.97	0.75	25.80	0.65	18.88	0.54	13.72	0.44	11.02	0.37	10.85	0.34
	1.00	10.74	0.38	12.92	0.40	17.19	0.48	23.12	0.58	29.87	0.70	36.07	0.80	40.09	0.87	40.95	0.90	38.22	0.87	32.72	0.80	25.61	0.70	18.75	0.59	13.63	0.48	10.93	0.41	10.75	0.38
	1.50	10.66	0.38	12.79	0.41	17.01	0.48	22.88	0.59	29.59	0.71	35.76	0.81	39.78	0.88	40.67	0.91	37.99	0.88	32.54	0.82	25.49	0.71	18.67	0.60	13.58	0.49	10.88	0.41	10.66	0.38
	2.00	10.59	0.37	12.68	0.39	16.85	0.47	22.67	0.58	29.35	0.69	35.51	0.80	39.54	0.87	40.46	0.90	37.81	0.87	32.42	0.80	25.41	0.70	18.62	0.59	13.55	0.48	10.84	0.40	10.59	0.37
	2.50	10.52	0.37	12.57	0.39	16.69	0.47	22.48	0.57	29.12	0.69	35.27	0.79	39.30	0.86	40.25	0.89	37.65	0.87	32.30	0.80	25.34	0.70	18.58	0.59	13.53	0.48	10.81	0.40	10.53	0.37
	3.00	10.46	0.37	12.46	0.39	16.53	0.46	22.27	0.57	28.88	0.68	35.01	0.78	39.05	0.86	40.02	0.88	37.46	0.86	32.16	0.79	25.25	0.69	18.54	0.58	13.50	0.48	10.77	0.40	10.47	0.37
	3.50	10.39	0.37	12.35	0.39	16.37	0.46	22.06	0.57	28.63	0.68	34.74	0.79	38.78	0.86	39.78	0.89	37.26	0.86	32.02	0.80	25.16	0.70	18.49	0.58	13.47	0.48	10.73	0.40	10.40	0.37

	4.00	10.30	0.37	12.22	0.39	16.18	0.47	21.81	0.57	28.33	0.69	34.40	0.79	38.44	0.87	39.46	0.89	36.99	0.87	31.81	0.80	25.02	0.70	18.40	0.59	13.42	0.48	10.68	0.40	10.31	0.37
	4.50	10.21	0.38	12.08	0.40	15.98	0.48	21.53	0.59	27.98	0.71	34.00	0.82	38.02	0.89	39.06	0.92	36.64	0.89	31.54	0.83	24.84	0.72	18.29	0.60	13.35	0.50	10.61	0.42	10.22	0.38
	5.00	10.16	0.39	11.99	0.41	15.86	0.48	21.39	0.59	27.84	0.70	33.87	0.81	37.91	0.88	38.99	0.91	36.61	0.89	31.53	0.82	24.84	0.72	18.30	0.61	13.36	0.50	10.60	0.42	10.17	0.39
	5.50	10.12	0.38	11.90	0.40	15.73	0.47	21.23	0.57	27.66	0.69	33.70	0.79	37.76	0.87	38.86	0.89	36.52	0.87	31.49	0.80	24.83	0.71	18.31	0.59	13.36	0.49	10.58	0.41	10.13	0.38
	6.00	9.96	0.40	11.68	0.42	15.41	0.50	20.79	0.61	27.07	0.74	32.98	0.85	36.96	0.92	38.06	0.95	35.80	0.93	30.91	0.86	24.41	0.75	18.03	0.63	13.19	0.51	10.44	0.43	9.97	0.40
	6.51	9.74	0.44	11.39	0.47	14.99	0.55	20.20	0.68	26.30	0.81	32.04	0.93	35.90	1.02	36.99	1.05	34.82	1.02	30.11	0.94	23.83	0.82	17.64	0.69	12.93	0.57	10.23	0.48	9.75	0.44
	6.82	9.69	0.45	11.32	0.48	14.90	0.56	20.10	0.68	26.20	0.82	31.96	0.94	35.86	1.02	36.97	1.05	34.82	1.02	30.10	0.95	23.82	0.83	17.63	0.70	12.91	0.58	10.21	0.49	9.71	0.45
Line #3	7.02	9.70	0.43	11.32	0.46	14.90	0.54	20.12	0.66	26.25	0.79	32.04	0.90	35.96	0.98	37.10	1.01	34.95	0.99	30.22	0.92	23.91	0.81	17.68	0.68	12.95	0.56	10.23	0.47	9.71	0.43
	7.24	9.73	0.33	11.35	0.37	14.93	0.46	20.16	0.58	26.33	0.70	32.18	0.79	36.11	0.85	37.28	0.88	35.11	0.86	30.34	0.81	24.04	0.68	17.76	0.56	13.00	0.46	10.27	0.37	9.74	0.34
	7.47	9.72	0.03	11.37	0.10	14.96	0.24	20.20	0.39	26.38	0.49	32.32	0.42	36.19	0.25	37.42	0.26	35.23	0.37	30.42	0.46	24.13	0.17	17.76	0.07	13.00	0.09	10.29	0.06	9.75	0.07
	7.70	9.72	0.08	11.36	0.09	14.93	0.09	20.12	0.17	26.24	0.26	32.32	0.11	35.96	0.22	37.26	0.14	34.92	0.12	30.28	0.27	24.02	0.09	17.69	0.14	12.97	0.13	10.29	0.06	9.74	0.04
	7.94	9.65	0.14	11.18	0.18	14.65	0.26	19.56	0.37	25.25	0.51	31.01	0.42	35.09	0.41	35.77	0.49	33.69	0.46	28.86	0.39	23.16	0.36	17.61	0.19	12.69	0.22	10.08	0.20	9.62	0.15
	8.17	9.13	0.40	10.68	0.41	14.00	0.44	18.69	0.55	24.03	0.67	29.02	0.77	32.63	0.90	33.36	0.89	31.33	0.87	27.21	0.79	21.64	0.69	16.26	0.68	11.99	0.50	9.60	0.40	9.17	0.38
	8.40	8.87	0.37	10.36	0.42	13.56	0.53	18.14	0.65	23.30	0.77	27.98	0.89	31.06	0.92	31.92	1.01	29.98	0.96	26.11	0.89	20.82	0.78	15.57	0.50	11.61	0.49	9.30	0.43	8.88	0.39
	8.68	8.64	0.47	10.06	0.51	13.14	0.61	17.51	0.73	22.46	0.86	26.99	0.99	30.17	1.10	30.90	1.12	29.10	1.10	25.33	1.01	20.18	0.87	15.20	0.73	11.31	0.61	9.06	0.51	8.65	0.48
	8.96	8.47	0.48	9.86	0.52	12.87	0.61	17.15	0.73	22.00	0.86	26.47	0.99	29.66	1.11	30.37	1.12	28.65	1.12	24.93	1.02	19.84	0.87	14.98	0.76	11.13	0.62	8.91	0.52	8.49	0.47
	9.25	8.57	0.32	9.97	0.36	13.04	0.43	17.40	0.52	22.38	0.62	26.99	0.71	30.45	0.82	31.15	0.82	29.52	0.85	25.66	0.77	20.28	0.62	15.35	0.56	11.36	0.44	9.05	0.36	8.58	0.31
	9.57	8.51	0.26	9.89	0.29	12.94	0.34	17.27	0.41	22.22	0.49	26.82	0.55	30.31	0.60	31.01	0.62	29.42	0.61	25.59	0.56	20.20	0.47	15.31	0.39	11.32	0.33	9.01	0.28	8.52	0.26
	10.39	8.09	0.35	9.37	0.38	12.24	0.45	16.36	0.56	21.07	0.67	25.47	0.77	28.85	0.84	29.57	0.87	28.08	0.84	24.45	0.78	19.31	0.67	14.65	0.56	10.84	0.46	8.60	0.38	8.10	0.35
	11.25	7.33	0.43	8.44	0.46	10.99	0.56	14.66	0.69	18.87	0.83	22.80	0.95	25.82	1.04	26.49	1.06	25.19	1.04	21.99	0.96	17.42	0.83	13.26	0.69	9.85	0.56	7.82	0.47	7.34	0.43
	11.92	6.18	0.57	7.08	0.61	9.16	0.73	12.14	0.90	15.55	1.08	18.72	1.23	21.15	1.34	21.70	1.37	20.66	1.34	18.11	1.24	14.43	1.07	11.06	0.90	8.28	0.74	6.60	0.61	6.19	0.57
	12.50	5.50	0.44	6.29	0.48	8.16	0.58	10.87	0.71	14.01	0.84	16.95	0.96	19.23	1.04	19.78	1.07	18.85	1.04	16.51	0.96	13.12	0.83	10.03	0.70	7.47	0.57	5.92	0.48	5.51	0.44
	13.04	2.95	0.61	3.34	0.67	4.22	0.82	5.44	1.02	6.78	1.24	7.99	1.42	8.89	1.56	9.08	1.60	8.68	1.55	7.72	1.43	6.30	1.22	4.97	1.01	3.84	0.81	3.13	0.67	2.95	0.61
	13.56	0.27	0.68	0.30	0.74	0.34	0.90	0.37	1.12	0.37	1.35	0.36	1.55	0.33	1.69	0.30	1.74	0.30	1.69	0.30	1.55	0.31	1.33	0.31	1.11	0.29	0.89	0.27	0.73	0.27	0.68
	13.66	0.02	0.52	0.02	0.58	0.02	0.71	0.02	0.89	0.02	1.08	0.02	1.26	0.01	1.38	0.01	1.42	0.01	1.38	0.01	1.26	0.01	1.07	0.01	0.88	0.01	0.70	0.02	0.57	0.02	0.53
	0.00	11.02	0.26	13.30	0.29	17.72	0.35	23.82	0.44	30.74	0.55	37.07	0.64	41.14	0.70	41.97	0.72	39.13	0.70	33.46	0.64	26.16	0.55	19.13	0.44	13.90	0.35	11.17	0.29	11.02	0.26
	0.50	10.85	0.34	13.08	0.37	17.41	0.44	23.41	0.54	30.22	0.65	36.45	0.75	40.47	0.82	41.31	0.85	38.53	0.82	32.97	0.75	25.80	0.65	18.88	0.54	13.72	0.44	11.02	0.37	10.85	0.34
	1.00	10.74	0.38	12.92	0.40	17.19	0.48	23.12	0.58	29.87	0.70	36.07	0.80	40.09	0.87	40.95	0.90	38.22	0.87	32.72	0.80	25.61	0.70	18.75	0.59	13.63	0.48	10.93	0.41	10.75	0.38
	1.50	10.66	0.38	12.79	0.41	17.01	0.48	22.88	0.59	29.59	0.71	35.76	0.81	39.78	0.88	40.67	0.91	37.99	0.88	32.54	0.82	25.49	0.71	18.67	0.60	13.58	0.49	10.88	0.41	10.66	0.38
	2.00	10.59	0.37	12.68	0.39	16.85	0.47	22.67	0.58	29.35	0.69	35.51	0.80	39.54	0.87	40.46	0.90	37.81	0.87	32.42	0.80	25.41	0.70	18.62	0.59	13.55	0.48	10.84	0.40	10.59	0.37
	2.50	10.52	0.37	12.57	0.39	16.69	0.47	22.48	0.57	29.12	0.69	35.27	0.79	39.30	0.86	40.25	0.89	37.65	0.87	32.30	0.80	25.34	0.70	18.58	0.59	13.53	0.48	10.81	0.40	10.53	0.37
	3.00	10.46	0.37	12.46	0.39	16.53	0.46	22.27	0.57	28.88	0.68	35.01	0.78	39.05	0.86	40.02	0.88	37.46	0.86	32.16	0.79	25.25	0.69	18.54	0.58	13.50	0.48	10.77	0.40	10.47	0.37
	3.50	10.39	0.37	12.35	0.39	16.37	0.46	22.06	0.57	28.63	0.68	34.74	0.79	38.78	0.86	39.78	0.89	37.26	0.86	32.02	0.80	25.16	0.70	18.49	0.58	13.47	0.48	10.73	0.40	10.40	0.37
	4.00	10.30	0.37	12.22	0.39	16.18	0.47	21.81	0.57	28.33	0.69	34.40	0.79	38.44	0.87	39.46	0.89	36.99	0.87	31.81	0.80	25.02	0.70	18.40	0.59	13.42	0.48	10.68	0.40	10.31	0.37
	4.50	10.21	0.38	12.08	0.40	15.98	0.48	21.53	0.59	27.98	0.71	34.00	0.82	38.02	0.89	39.06	0.92	36.64	0.89	31.54	0.83	24.84	0.72	18.29	0.60	13.35	0.50	10.61	0.42	10.22	0.38
	5.00	10.16	0.39	11.99	0.41	15.86	0.48	21.39	0.59	27.84	0.70	33.87	0.81	37.91	0.88	38.99	0.91	36.61	0.89	31.53	0.82	24.84	0.72	18.30	0.61	13.36	0.50	10.60	0.42	10.17	0.39
	5.50	10.12	0.38	11.90	0.40	15.73	0.47	21.23	0.57	27.66	0.69	33.70	0.79	37.76	0.87	38.86	0.89	36.52	0.87	31.49	0.80	24.83	0.71	18.31	0.59	13.36	0.49	10.58	0.41	10.13	0.38
	6.00	9.96	0.40	11.68	0.42	15.41	0.50	20.79	0.61	27.07	0.74	32.98	0.85	36.96	0.92	38.06	0.95	35.80	0.93	30.91	0.86	24.41	0.75	18.03	0.63	13.19	0.51	10.44	0.43	9.97	0.40
	6.51	9.74	0.44	11.39	0.47	14.99	0.55	20.20	0.68	26.30	0.81	32.04	0.93	35.90	1.02	36.99	1.05	34.82	1.02	30.11	0.94	23.83	0.82	17.64	0.69	12.93	0.57	10.23	0.48	9.75	0.44
	6.82	9.69	0.45	11.32	0.48	14.90	0.56	20.10	0.68	26.20	0.82	31.96	0.94	35.86	1.02	36.97	1.05	34.82	1.02	30.10	0.95	23.82	0.83	17.63	0.70	12.91	0.58	10.21	0.49	9.71	0.45
	7.02	9.70	0.43	11.32	0.46	14.90	0.54	20.12	0.66	26.25	0.79	32.04	0.90	35.96	0.98	37.10	1.01	34.95	0.99	30.22	0.92	23.91	0.81	17.68	0.68	12.95	0.56	10.23	0.47	9.71	0.43
Line #4	7.24	9.73	0.33	11.35	0.37	14.93	0.46	20.16	0.58	26.33	0.70	32.18	0.79	36.11	0.85	37.28	0.88	35.11	0.86	30.34	0.81	24.04	0.68	17.76	0.56	13.00	0.46	10.27	0.37	9.74	0.34
	7.47	9.72	0.03	11.37	0.10	14.96	0.24	20.20	0.39	26.38	0.49	32.32	0.42	36.19	0.25	37.42	0.26	35.23	0.37	30.42	0.46	24.13	0.17	17.76	0.07	13.00	0.09	10.29	0.06	9.75	0.07
	7.70	9.72	0.08	11.36	0.09	14.93	0.09	20.12	0.17	26.24	0.26	32.32	0.11	35.96	0.22	37.26	0.14	34.92	0.12	30.28	0.27	24.02	0.09	17.69	0.14	12.97	0.13	10.29	0.06	9.74	0.04
	7.94	9.65	0.14	11.18	0.18	14.65	0.26	19.56	0.37	25.25	0.51	31.01	0.42	35.09	0.41	35.77	0.49	33.69	0.46	28.86	0.39	23.16	0.36	17.61	0.19	12.69	0.22	10.08	0.20	9.62	0.15
	8.17	9.13	0.40	10.68	0.41	14.00	0.44	18.69	0.55	24.03	0.67	29.02	0.77	32.63	0.90	33.36	0.89	31.33	0.87	27.21	0.79	21.64	0.69	16.26	0.68	11.99	0.50	9.60	0.40	9.17	0.38
	8.40	8.87	0.37	10.36	0.42	13.56	0.53	18.14	0.65	23.30	0.77	27.98	0.89	31.06	0.92	31.92	1.01	29.98	0.96	26.11	0.89	20.82	0.78	15.57	0.50	11.61	0.49	9.30	0.43	8.88	0.39
	8.68	8.64	0.47	10.06	0.51	13.14	0.61	17.51	0.73	22.46	0.86	26.99	0.99	30.17	1.10	30.90	1.12	29.10	1.10	25.33	1.01	20.18	0.87	15.20	0.73	11.31	0.61	9.06	0.51	8.65	0.48
	8.96	8.47	0.48	9.86	0.52	12.87	0.61	17.15	0.73	22.00	0.86	26.47	0.99	29.66	1.11	30.37	1.12	28.65	1.12	24.93	1.02	19.84	0.87	14.98	0.76	11.13	0.62	8.91	0.52	8.49	0.47
	9.19	8.36	0.07	9.72	0.08	12.67	0.09	16.85	0.09	21.59	0.10	25.95	0.10	29.05	0.09	29.72	0.08	28.07	0.09	24.42	0.08	19.47	0.08	14.72	0.08	10.96	0.07	8.78	0.07	8.37	0.07
	9.43	8.30	0.34	9.64	0.37	12.58	0.45	16.80	0.56	21.60	0.69	26.03	0.80	29.07	0.85	29.83	0.88	28.07	0.84	24.43	0.76	19.52	0.69	14.66	0.54	10.91	0.44	8.73	0.37	8.32	0.34
	9.93	7.83	0.41	9.07	0.45	11.82	0.54	15.80	0.65	20.34	0.78	24.53	0.89	27.36	0.97	28.13	0.99	26.44	0.96	23.02	0.89	18.46	0.77	13.82	0.65	10.31	0.53	8.25	0.45	7.85	0.41
	10.43	7.30	0.40	8.43	0.43	10.98	0.52	14.67	0.65	18.89	0.78	22.79	0.90	25.44	0.98	26.17	1.01	24.62	0.98	21.45	0.90	17.23	0.78	12.92	0.64	9.64	0.52	7.71	0.43	7.31	0.40
	10.94	6.66	0.48	7.67	0.52	9.97	0.63	13.32	0.78	17.15	0.93	20.70	1.07	23.11	1.16	23.79	1.20	22.39	1.16	19.54	1.07	15.71	0.93	11.80	0.77	8.82	0.63	7.05	0.52	6.67	0.48
	11.44	5.86	0.54	6.73	0.58	8.73	0.70	11.64	0.86	14.97	1.03	18.05	1.18	20.15	1.28	20.75	1.32	19.56	1.28	17.09	1.18	13.78	1.03	10.38	0.86	7.77	0.70	6.22	0.58	5.87	0.54
	11.94	5.11	0.48	5.85	0.52	7.59	0.63	10.14	0.79	13.08	0.95	15.83	1.10	17.72	1.19	18.28	1.23	17.24	1.19	15.07	1.09	12.14	0.95	9.15	0.78	6.84	0.63	5.45	0.52	5.12	0.48
	12.45	4.73	0.43	5.41	0.46	7.06	0.54	9.56	0.66	12.48	0.78	15.25	0.88	17.19	0.95	17.78	0.97	16.78	0.94	14.62	0.87	11.72	0.77	8.76	0.64	6.47	0.53	5.09	0.45	4.74	0.43
	12.96	3.53	0.56	4.02	0.61	5.26	0.73	7.15	0.89	9.38	1.06	11.50	1.21	13.00	1.31	13.47	1.34	12.72	1.31	11.08	1.21	8.87	1.06	6.61	0.89	4.87	0.73	3.81	0.61	3.54	0.57
	13.52	1.20	0.74	1.36	0.79	1.78	0.94	2.41	1.15	3.16	1.37	3.88	1.56	4.39	1.69	4.55	1.73	4.30	1.68	3.75	1.55	3.00	1.37	2.24	1.14	1.65	0.94	1.30	0.79	1.20	0.74
	13.63	0.59	0.78	0.67	0.84	0.87	1.00	1.18	1.22	1.55	1.45	1.90	1.65	2.15	1.78	2.23	1.83	2.11	1.77	1.84	1.64	1.47	1.44	1.10	1.21	0.81	1.00	0.64	0.84	0.59	0.78
	0.00	11.02	0.26	13.30	0.29	17.72	0.35	23.82	0.44	30.74	0.55	37.07	0.64	41.14	0.70	41.97	0.72	39.13	0.70	33.46	0.64	26.16	0.55	19.13	0.44	13.90	0.35	11.17	0.29	11.02	0.26
	0.50	10.85	0.34	13.08	0.37	17.41	0.44	23.41	0.54	30.22	0.65	36.45	0.75	40.47	0.82	41.31	0.85	38.53	0.82	32.97	0.75	25.80	0.65	18.88	0.54	13.72	0.44	11.02	0.37	10.85	0.34
	1.00	10.74	0.38	12.92	0.40	17.19	0.48	23.12	0.58	29.87	0.70	36.07	0.80	40.09	0.87	40.95	0.90	38.22	0.87	32.72	0.80	25.61	0.70	18.75	0.59	13.63	0.48	10.93	0.41	10.75	0.38
	1.50	10.66	0.38	12.79	0.41	17.01	0.48	22.88	0.59	29.59	0.71	35.76	0.81	39.78	0.88	40.67	0.91	37.99	0.88	32.54	0.82	25.49	0.71	18.67	0.60	13.58	0.49	10.88	0.41	10.66	0.38
	2.00	10.59	0.37	12.68	0.39	16.85	0.47	22.67	0.58	29.35	0.69	35.51	0.80	39.54	0.87	40.46	0.90	37.81	0.87	32.42	0.80	25.41	0.70	18.62	0.59	13.55	0.48	10.84	0.40	10.59	0.37
	2.50	10.52	0.37	12.57	0.39	16.69	0.47	22.48	0.57	29.12	0.69	35.27	0.79	39.30	0.86	40.25	0.89	37.65	0.87	32.30	0.80	25.34	0.70	18.58	0.59	13.53	0.48	10.81	0.40	10.53	0.37
	3.00	10.46	0.37	12.46	0.39	16.53	0.46	22.27	0.57	28.88	0.68	35.01	0.78	39.05	0.86	40.02	0.88	37.46	0.86	32.16	0.79	25.25	0.69	18.54	0.58	13.50	0.48	10.77	0.40	10.47	0.37
	3.50	10.39	0.37	12.35	0.39	16.37	0.46	22.06	0.57	28.63	0.68	34.74	0.79	38.78	0.86	39.78	0.89	37.26	0.86	32.02	0.80	25.16	0.70	18.49	0.58	13.47	0.48	10.73	0.40	10.40	0.37
	4.00	10.30	0.37	12.22	0.39	16.18	0.47	21.81	0.57	28.33	0.69	34.40	0.79	38.44	0.87	39.46	0.89	36.99	0.87	31.81	0.80	25.02	0.70	18.40	0.59	13.42	0.48	10.68	0.40	10.31	0.37
	4.50	10.21	0.38	12.08	0.40	15.98	0.48	21.53	0.59	27.98	0.71	34.00	0.82	38.02	0.89	39.06	0.92	36.64	0.89	31.54	0.83	24.84	0.72	18.29	0.60	13.35	0.50	10.61	0.42	10.22	0.38
Line #5	5.00	10.16	0.39	11.99	0.41	15.86	0.48	21.39	0.59	27.84	0.70	33.87	0.81	37.91	0.88	38.99	0.91	36.61	0.89	31.53	0.82	24.84	0.72	18.30	0.61	13.36	0.50	10.60	0.42	10.17	0.39
	5.56	10.03	0.17	11.83	0.19	15.63	0.21	21.06	0.24	27.35	0.27	33.24	0.29	37.16	0.29	38.18	0.29	35.85	0.28	30.90	0.27	24.38	0.24	17.99	0.22	13.16	0.19	10.45	0.18	10.04	0.17
	5.85	9.95	0.23	11.72	0.25	15.48	0.30	20.87	0.37	27.13	0.45	32.99	0.52	36.92	0.57	37.96	0.59	35.65	0.57	30.73	0.52	24.23	0.45	17.87	0.38	13.07	0.30	10.37	0.25	9.96	0.23
	6.36	9.71	0.29	11.43	0.31	15.07	0.37	20.30	0.47	26.38	0.56	32.08	0.65	35.90	0.71	36.93	0.73	34.70	0.71	29.93	0.65	23.63	0.57	17.45	0.47	12.77	0.37	10.14	0.31	9.72	0.29
	7.12	9.04	0.36	10.61	0.40	13.95	0.49	18.74	0.61	24.29	0.75	29.47	0.87	32.95	0.95	33.88	0.97	31.87	0.94	27.54	0.86	21.81	0.74	16.17	0.61	11.88	0.48	9.45	0.39	9.05	0.36
	7.96	7.79	0.45	9.11	0.49	11.92	0.60	15.92	0.76	20.54	0.93	24.83	1.08	27.70	1.18	28.47	1.21	26.80	1.17	23.23	1.07	18.49	0.92	13.80	0.75	10.20	0.59	8.14	0.48	7.80	0.45
	8.67	6.84	0.51	7.98	0.56	10.44	0.68	13.98	0.84	18.09	1.02	21.94	1.17	24.53	1.27	25.25	1.31	23.79	1.27	20.62	1.16	16.41	1.01	12.24	0.83	9.03	0.67	7.19	0.55	6.85	0.51
	9.17	6.28	0.44	7.31	0.48	9.57	0.59	12.85	0.74	16.68	0.91	20.29	1.05	22.74	1.15	23.45	1.18	22.11	1.14	19.16	1.05	15.24	0.90	11.36	0.73	8.36	0.58	6.63	0.48	6.29	0.44
	9.68	5.62	0.45	6.52	0.49	8.53	0.61	11.45	0.76	14.89	0.93	18.14	1.08	20.35	1.18	21.01	1.21	19.83	1.18	17.20	1.07	13.70	0.92	10.22	0.75	7.53	0.60	5.96	0.49	5.63	0.45
	10.18	4.90	0.29	5.66	0.32	7.39	0.41	9.94	0.53	12.95	0.66	15.81	0.79	17.77	0.87	18.37	0.90	17.36	0.87	15.07	0.78	12.02	0.65	8.97	0.51	6.61	0.40	5.22	0.32	4.91	0.29
	10.69	3.37	0.38	3.87	0.42	5.03	0.52	6.71	0.68	8.70	0.86	10.58	1.02	11.87	1.13	12.26	1.17	11.60	1.13	10.10	1.01	8.09	0.85	6.08	0.67	4.51	0.51	3.58	0.41	3.37	0.38
	11.24	1.11	0.05	1.28	0.06	1.64	0.07	2.17	0.10	2.77	0.12	3.34	0.15	3.72	0.17	3.84	0.17	3.63	0.17	3.18	0.15	2.57	0.12	1.95	0.09	1.47	0.07	1.18	0.06	1.11	0.05

RAA - Simulation - Raw Data

Table A7.7: RAA2 - Finer Resolution - 75% Growth

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
	0.00	11.02	0.26	13.28	0.29	17.68	0.35	23.76	0.44	30.68	0.55	37.11	0.64	41.45	0.70	42.34	0.72	39.59	0.70	33.60	0.64	26.30	0.55	19.36	0.44	14.05	0.35	11.20	0.29	11.04	0.26
	0.50	10.85	0.35	13.05	0.37	17.37	0.44	23.34	0.54	30.15	0.65	36.49	0.75	40.78	0.82	41.68	0.85	38.99	0.82	33.10	0.76	25.93	0.66	19.10	0.55	13.86	0.44	11.04	0.37	10.87	0.35
	1.00	10.74	0.37	12.90	0.40	17.15	0.47	23.05	0.58	29.81	0.69	36.11	0.80	40.40	0.87	41.32	0.89	38.68	0.87	32.85	0.80	25.74	0.70	18.97	0.58	13.77	0.48	10.96	0.40	10.76	0.37
	1.50	10.66	0.38	12.77	0.41	16.96	0.48	22.81	0.59	29.52	0.71	35.80	0.81	40.09	0.88	41.03	0.91	38.44	0.88	32.67	0.82	25.61	0.71	18.89	0.60	13.72	0.49	10.90	0.41	10.67	0.38
	2.00	10.59	0.38	12.65	0.40	16.80	0.48	22.60	0.58	29.27	0.70	35.54	0.80	39.84	0.88	40.81	0.90	38.26	0.88	32.53	0.81	25.53	0.71	18.84	0.60	13.68	0.49	10.86	0.41	10.60	0.38
	2.50	10.52	0.37	12.54	0.40	16.64	0.47	22.40	0.58	29.04	0.69	35.29	0.80	39.60	0.87	40.60	0.89	38.09	0.87	32.41	0.80	25.45	0.70	18.80	0.59	13.65	0.48	10.83	0.41	10.54	0.37
	3.00	10.46	0.37	12.44	0.39	16.48	0.46	22.20	0.57	28.81	0.68	35.04	0.79	39.35	0.86	40.38	0.89	37.91	0.86	32.29	0.80	25.38	0.70	18.76	0.58	13.63	0.48	10.79	0.40	10.48	0.37
	3.50	10.39	0.37	12.32	0.39	16.32	0.46	21.98	0.57	28.55	0.68	34.77	0.79	39.08	0.86	40.14	0.88	37.72	0.86	32.14	0.79	25.29	0.69	18.71	0.58	13.60	0.48	10.75	0.40	10.41	0.37
	4.00	10.31	0.37	12.19	0.40	16.13	0.47	21.73	0.58	28.25	0.69	34.43	0.80	38.73	0.87	39.80	0.90	37.43	0.87	31.93	0.80	25.14	0.70	18.62	0.59	13.54	0.48	10.70	0.41	10.33	0.37
	4.50	10.22	0.39	12.05	0.41	15.93	0.48	21.46	0.59	27.91	0.71	34.04	0.82	38.32	0.90	39.42	0.92	37.10	0.90	31.67	0.83	24.96	0.73	18.51	0.61	13.47	0.50	10.63	0.42	10.23	0.39
	5.00	10.17	0.39	11.96	0.41	15.80	0.48	21.31	0.59	27.76	0.71	33.90	0.81	38.22	0.89	39.35	0.91	37.06	0.89	31.66	0.82	24.97	0.72	18.52	0.61	13.47	0.50	10.61	0.42	10.18	0.39
	5.50	10.12	0.39	11.88	0.41	15.67	0.48	21.15	0.58	27.58	0.70	33.73	0.80	38.07	0.87	39.23	0.90	36.99	0.87	31.62	0.81	24.96	0.71	18.53	0.60	13.48	0.50	10.60	0.42	10.14	0.39
	6.00	9.96	0.40	11.65	0.42	15.35	0.50	20.70	0.61	26.99	0.74	33.01	0.85	37.26	0.92	38.41	0.95	36.25	0.93	31.03	0.85	24.53	0.75	18.25	0.63	13.30	0.51	10.46	0.43	9.98	0.40
	6.51	9.74	0.44	11.36	0.47	14.93	0.56	20.11	0.69	26.21	0.82	32.05	0.94	36.19	1.03	37.33	1.06	35.26	1.03	30.21	0.95	23.94	0.83	17.85	0.70	13.03	0.57	10.25	0.48	9.76	0.44
	6.82	9.70	0.46	11.29	0.48	14.84	0.57	20.01	0.69	26.11	0.83	31.98	0.95	36.15	1.03	37.30	1.06	35.23	1.04	30.18	0.96	23.93	0.84	17.84	0.71	13.02	0.59	10.22	0.49	9.71	0.46
	7.03	9.70	0.43	11.29	0.45	14.84	0.53	20.02	0.65	26.15	0.79	32.06	0.90	36.26	0.99	37.45	1.01	35.39	0.98	30.31	0.91	24.01	0.81	17.89	0.68	13.06	0.56	10.24	0.46	9.72	0.43
	7.23	9.72	0.33	11.31	0.35	14.86	0.43	20.06	0.55	26.22	0.68	32.14	0.80	36.37	0.87	37.57	0.86	35.45	0.80	30.31	0.70	24.05	0.70	17.92	0.60	13.09	0.43	10.27	0.36	9.74	0.33
Line #1	7.45	9.72	0.14	11.31	0.14	14.88	0.18	20.08	0.25	26.23	0.34	32.16	0.40	36.41	0.36	37.60	0.14	35.36	0.26	30.15	0.20	23.96	0.36	17.83	0.37	13.03	0.13	10.26	0.13	9.75	0.11
	7.65	9.68	0.13	11.29	0.11	14.87	0.10	20.06	0.13	26.22	0.19	32.15	0.21	36.40	0.04	37.49	0.18	34.44	0.12	29.99	0.16	23.99	0.10	17.78	0.21	13.01	0.11	10.27	0.06	9.74	0.04
	7.85	9.62	0.16	11.25	0.12	14.83	0.10	20.01	0.12	26.12	0.18	32.02	0.21	36.17	0.14	37.40	0.19	34.41	0.24	29.96	0.29	23.85	0.33	17.71	0.18	12.97	0.05	10.25	0.13	9.74	0.05
	8.05	9.54	0.21	11.16	0.18	14.71	0.18	19.83	0.23	25.76	0.35	31.46	0.41	35.64	0.23	36.59	0.32	33.77	0.38	29.92	0.31	23.46	0.25	17.42	0.28	12.87	0.12	10.10	0.14	9.67	0.16
	8.26	9.43	0.27	10.99	0.27	14.44	0.31	19.36	0.42	24.93	0.53	30.22	0.64	34.12	0.55	35.07	0.63	32.76	0.56	28.82	0.48	22.84	0.44	17.01	0.41	12.54	0.36	9.84	0.16	9.40	0.21
	8.46	9.16	0.37	10.65	0.40	13.92	0.47	18.60	0.57	23.94	0.69	28.80	0.79	32.12	0.86	32.97	0.92	31.02	0.96	27.00	0.88	21.69	0.61	16.44	0.59	11.96	0.43	9.52	0.39	9.07	0.33
	8.66	8.97	0.42	10.41	0.45	13.59	0.53	18.15	0.65	23.36	0.77	28.08	0.88	31.04	0.98	31.75	1.01	29.89	0.93	26.03	0.89	21.10	0.76	16.08	0.65	11.72	0.50	9.28	0.44	8.88	0.40
	8.87	8.84	0.45	10.25	0.47	13.37	0.56	17.85	0.68	22.97	0.82	27.61	0.93	30.68	1.00	31.49	1.03	29.66	0.94	25.85	0.93	20.83	0.76	15.84	0.69	11.55	0.55	9.17	0.47	8.75	0.43
	9.07	8.70	0.46	10.08	0.49	13.14	0.58	17.53	0.71	22.56	0.85	27.11	0.96	30.15	1.04	30.97	1.07	29.19	0.98	25.45	0.96	20.49	0.77	15.59	0.72	11.37	0.58	9.03	0.49	8.61	0.45
	9.60	8.32	0.50	9.60	0.54	12.49	0.64	16.65	0.78	21.41	0.93	25.72	1.05	28.61	1.14	29.40	1.17	27.73	1.14	24.25	1.06	19.49	0.92	14.89	0.78	10.89	0.64	8.65	0.54	8.23	0.50
	9.80	8.18	0.52	9.43	0.55	12.26	0.65	16.34	0.79	21.02	0.95	25.27	1.08	28.11	1.17	28.90	1.20	27.25	1.16	23.85	1.08	19.17	0.94	14.66	0.81	10.72	0.66	8.51	0.55	8.08	0.51
	10.49	7.67	0.38	8.83	0.40	11.46	0.47	15.27	0.55	19.65	0.64	23.62	0.72	26.30	0.78	27.04	0.79	25.50	0.77	22.35	0.71	17.96	0.63	13.75	0.55	10.07	0.46	8.00	0.40	7.59	0.37
	11.22	7.10	0.41	8.14	0.44	10.56	0.52	14.08	0.64	18.13	0.76	21.83	0.87	24.33	0.94	25.05	0.97	23.65	0.94	20.74	0.88	16.67	0.76	12.77	0.65	9.37	0.53	7.43	0.44	7.02	0.41
	12.24	6.02	0.47	6.86	0.50	8.88	0.60	11.84	0.74	15.26	0.88	18.40	1.01	20.54	1.09	21.17	1.12	20.02	1.09	17.60	1.01	14.17	0.88	10.89	0.75	8.00	0.61	6.33	0.51	5.95	0.47
	12.75	5.24	0.51	5.96	0.55	7.68	0.66	10.23	0.82	13.17	0.98	15.87	1.13	17.71	1.22	18.27	1.26	17.29	1.22	15.23	1.13	12.29	0.98	9.47	0.83	6.98	0.67	5.53	0.55	5.18	0.51
	13.15	4.56	0.58	5.16	0.62	6.64	0.74	8.83	0.92	11.37	1.10	13.71	1.26	15.30	1.36	15.80	1.40	14.96	1.36	13.20	1.26	10.66	1.10	8.24	0.93	6.09	0.76	4.82	0.62	4.50	0.57
	13.61	4.16	0.51	4.70	0.54	6.11	0.64	8.24	0.77	10.76	0.92	13.12	1.04	14.75	1.12	15.29	1.15	14.49	1.12	12.75	1.04	10.21	0.92	7.82	0.78	5.70	0.64	4.44	0.54	4.10	0.50
	14.19	2.05	0.71	2.31	0.75	2.99	0.89	4.04	1.07	5.29	1.26	6.46	1.43	7.28	1.53	7.56	1.57	7.16	1.53	6.31	1.43	5.05	1.26	3.87	1.08	2.82	0.89	2.19	0.75	2.02	0.70
	0.00	11.02	0.26	13.28	0.29	17.68	0.35	23.76	0.44	30.68	0.55	37.11	0.64	41.45	0.70	42.34	0.72	39.59	0.70	33.60	0.64	26.30	0.55	19.36	0.44	14.05	0.35	11.20	0.29	11.04	0.26
	0.50	10.85	0.35	13.05	0.37	17.37	0.44	23.34	0.54	30.15	0.65	36.49	0.75	40.78	0.82	41.68	0.85	38.99	0.82	33.10	0.76	25.93	0.66	19.10	0.55	13.86	0.44	11.04	0.37	10.87	0.35
	1.00	10.74	0.37	12.90	0.40	17.15	0.47	23.05	0.58	29.81	0.69	36.11	0.80	40.40	0.87	41.32	0.89	38.68	0.87	32.85	0.80	25.74	0.70	18.97	0.58	13.77	0.48	10.96	0.40	10.76	0.37
	1.50	10.66	0.38	12.77	0.41	16.96	0.48	22.81	0.59	29.52	0.71	35.80	0.81	40.09	0.88	41.03	0.91	38.44	0.88	32.67	0.82	25.61	0.71	18.89	0.60	13.72	0.49	10.90	0.41	10.67	0.38
	2.00	10.59	0.38	12.65	0.40	16.80	0.48	22.60	0.58	29.27	0.70	35.54	0.80	39.84	0.88	40.81	0.90	38.26	0.88	32.53	0.81	25.53	0.71	18.84	0.60	13.68	0.49	10.86	0.41	10.60	0.38
	2.50	10.52	0.37	12.54	0.40	16.64	0.47	22.40	0.58	29.04	0.69	35.29	0.80	39.60	0.87	40.60	0.89	38.09	0.87	32.41	0.80	25.45	0.70	18.80	0.59	13.65	0.48	10.83	0.41	10.54	0.37
	3.00	10.46	0.37	12.44	0.39	16.48	0.46	22.20	0.57	28.81	0.68	35.04	0.79	39.35	0.86	40.38	0.89	37.91	0.86	32.29	0.80	25.38	0.70	18.76	0.58	13.63	0.48	10.79	0.40	10.48	0.37
	3.50	10.39	0.37	12.32	0.39	16.32	0.46	21.98	0.57	28.55	0.68	34.77	0.79	39.08	0.86	40.14	0.88	37.72	0.86	32.14	0.79	25.29	0.69	18.71	0.58	13.60	0.48	10.75	0.40	10.41	0.37
	4.00	10.31	0.37	12.19	0.40	16.13	0.47	21.73	0.58	28.25	0.69	34.43	0.80	38.73	0.87	39.80	0.90	37.43	0.87	31.93	0.80	25.14	0.70	18.62	0.59	13.54	0.48	10.70	0.41	10.33	0.37
	4.50	10.22	0.39	12.05	0.41	15.93	0.48	21.46	0.59	27.91	0.71	34.04	0.82	38.32	0.90	39.42	0.92	37.10	0.90	31.67	0.83	24.96	0.73	18.51	0.61	13.47	0.50	10.63	0.42	10.23	0.39
	5.00	10.17	0.39	11.96	0.41	15.80	0.48	21.31	0.59	27.76	0.71	33.90	0.81	38.22	0.89	39.35	0.91	37.06	0.89	31.66	0.82	24.97	0.72	18.52	0.61	13.47	0.50	10.61	0.42	10.18	0.39
	5.50	10.12	0.39	11.88	0.41	15.67	0.48	21.15	0.58	27.58	0.70	33.73	0.80	38.07	0.87	39.23	0.90	36.99	0.87	31.62	0.81	24.96	0.71	18.53	0.60	13.48	0.50	10.60	0.42	10.14	0.39
	6.00	9.96	0.40	11.65	0.42	15.35	0.50	20.70	0.61	26.99	0.74	33.01	0.85	37.26	0.92	38.41	0.95	36.25	0.93	31.03	0.85	24.53	0.75	18.25	0.63	13.30	0.51	10.46	0.43	9.98	0.40
	6.51	9.74	0.44	11.36	0.47	14.93	0.56	20.11	0.69	26.21	0.82	32.05	0.94	36.19	1.03	37.33	1.06	35.26	1.03	30.21	0.95	23.94	0.83	17.85	0.70	13.03	0.57	10.25	0.48	9.76	0.44
	6.82	9.70	0.46	11.29	0.48	14.84	0.57	20.01	0.69	26.11	0.83	31.98	0.95	36.15	1.03	37.30	1.06	35.23	1.04	30.18	0.96	23.93	0.84	17.84	0.71	13.02	0.59	10.22	0.49	9.71	0.46
	7.03	9.70	0.43	11.29	0.45	14.84	0.53	20.02	0.65	26.15	0.79	32.06	0.90	36.26	0.99	37.45	1.01	35.39	0.98	30.31	0.91	24.01	0.81	17.89	0.68	13.06	0.56	10.24	0.46	9.72	0.43
	7.23	9.72	0.33	11.31	0.35	14.86	0.43	20.06	0.55	26.22	0.68	32.14	0.80	36.37	0.87	37.57	0.86	35.45	0.80	30.31	0.70	24.05	0.70	17.92	0.60	13.09	0.43	10.27	0.36	9.74	0.33
Line #2	7.45	9.72	0.14	11.31	0.14	14.88	0.18	20.08	0.25	26.23	0.34	32.16	0.40	36.41	0.36	37.60	0.14	35.36	0.26	30.15	0.20	23.96	0.36	17.83	0.37	13.03	0.13	10.26	0.13	9.75	0.11
	7.65	9.68	0.13	11.29	0.11	14.87	0.10	20.06	0.13	26.22	0.19	32.15	0.21	36.40	0.04	37.49	0.18	34.44	0.12	29.99	0.16	23.99	0.10	17.78	0.21	13.01	0.11	10.27	0.06	9.74	0.04
	7.85	9.62	0.16	11.25	0.12	14.83	0.10	20.01	0.12	26.12	0.18	32.02	0.21	36.17	0.14	37.40	0.19	34.41	0.24	29.96	0.29	23.85	0.33	17.71	0.18	12.97	0.05	10.25	0.13	9.74	0.05
	8.05	9.54	0.21	11.16	0.18	14.71	0.18	19.83	0.23	25.76	0.35	31.46	0.41	35.64	0.23	36.59	0.32	33.77	0.38	29.92	0.31	23.46	0.25	17.42	0.28	12.87	0.12	10.10	0.14	9.67	0.16
	8.26	9.43	0.27	10.99	0.27	14.44	0.31	19.36	0.42	24.93	0.53	30.22	0.64	34.12	0.55	35.07	0.63	32.76	0.56	28.82	0.48	22.84	0.44	17.01	0.41	12.54	0.36	9.84	0.16	9.40	0.21
	8.46	9.16	0.37	10.65	0.40	13.92	0.47	18.60	0.57	23.94	0.69	28.80	0.79	32.12	0.86	32.97	0.92	31.02	0.96	27.00	0.88	21.69	0.61	16.44	0.59	11.96	0.43	9.52	0.39	9.07	0.33
	8.66	8.97	0.42	10.41	0.45	13.59	0.53	18.15	0.65	23.36	0.77	28.08	0.88	31.04	0.98	31.75	1.01	29.89	0.93	26.03	0.89	21.10	0.76	16.08	0.65	11.72	0.50	9.28	0.44	8.88	0.40
	8.87	8.84	0.45	10.25	0.47	13.37	0.56	17.85	0.68	22.97	0.82	27.61	0.93	30.68	1.00	31.49	1.03	29.66	0.94	25.85	0.93	20.83	0.76	15.84	0.69	11.55	0.55	9.17	0.47	8.75	0.43
	9.07	8.70	0.46	10.08	0.49	13.14	0.58	17.53	0.71	22.56	0.85	27.11	0.96	30.15	1.04	30.97	1.07	29.19	0.98	25.45	0.96	20.49	0.77	15.59	0.72	11.37	0.58	9.03	0.49	8.61	0.45
	9.60	8.32	0.50	9.60	0.54	12.49	0.64	16.65	0.78	21.41	0.93	25.72	1.05	28.61	1.14	29.40	1.17	27.73	1.14	24.25	1.06	19.49	0.92	14.89	0.78	10.89	0.64	8.65	0.54	8.23	0.50
	9.80	8.18	0.52	9.43	0.55	12.26	0.65	16.34	0.79	21.02	0.95	25.27	1.08	28.11	1.17	28.90	1.20	27.25	1.16	23.85	1.08	19.17	0.94	14.66	0.81	10.72	0.66	8.51	0.55	8.08	0.51
	10.12	8.31	0.40	9.57	0.42	12.47	0.50	16.72	0.62	21.64	0.75	26.17	0.86	29.24	0.94	30.10	0.96	28.33	0.93	24.77	0.86	19.84	0.75	15.17	0.65	11.03	0.52	8.70	0.43	8.21	0.39
	10.65	8.18	0.36	9.39	0.38	12.24	0.45	16.44	0.55	21.33	0.67	25.84	0.76	28.93	0.83	29.81	0.85	28.07	0.82	24.56	0.77	19.67	0.67	15.04	0.56	10.93	0.46	8.60	0.38	8.08	0.35
	11.19	7.78	0.40	8.91	0.43	11.60	0.51	15.58	0.63	20.23	0.75	24.51	0.86	27.46	0.93	28.32	0.96	26.69	0.93	23.39	0.87	18.74	0.76	14.36	0.64	10.44	0.52	8.20	0.43	7.69	0.40
	11.76	7.15	0.47	8.15	0.50	10.59	0.60	14.20	0.73	18.43	0.88	22.33	1.01	25.02	1.09	25.82	1.12	24.36	1.09	21.38	1.01	17.16	0.88	13.18	0.75	9.61	0.60	7.55	0.50	7.06	0.47
	12.35	6.15	0.58	6.99	0.62	9.03	0.74	12.06	0.90	15.60	1.08	18.87	1.23	21.11	1.34	21.78	1.37	20.59	1.33	18.12	1.24	14.61	1.08	11.27	0.92	8.27	0.74	6.51	0.62	6.08	0.57
	12.96	5.51	0.50	6.23	0.53	8.10	0.64	10.93	0.78	14.28	0.94	17.43	1.07	19.62	1.16	20.32	1.19	19.21	1.16	16.89	1.08	13.53	0.94	10.38	0.80	7.56	0.65	5.88	0.53	5.44	0.49
	13.66	2.86	0.76	3.22	0.81	4.15	0.96	5.54	1.17	7.17	1.39	8.69	1.58	9.74	1.71	10.08	1.75	9.54	1.70	8.43	1.58	6.81	1.39	5.28	1.18	3.89	0.96	3.06	0.81	2.83	0.75
	14.16	0.06	0.85	0.06	0.91	0.08	1.08	0.10	1.31	0.12	1.57	0.14	1.78	0.15	1.92	0.16	1.98	0.15	1.92	0.14	1.78	0.12	1.56	0.10	1.33	0.08	1.08	0.06	0.91	0.06	0.84
	0.00	11.02	0.26	13.28	0.29	17.68	0.35	23.76	0.44	30.68	0.55	37.11	0.64	41.45	0.70	42.34	0.72	39.59	0.70	33.60	0.64	26.30	0.55	19.36	0.44	14.05	0.35	11.20	0.29	11.04	0.26
	0.50	10.85	0.35	13.05	0.37	17.37	0.44	23.34	0.54	30.15	0.65	36.49	0.75	40.78	0.82	41.68	0.85	38.99	0.82	33.10	0.76	25.93	0.66	19.10	0.55	13.86	0.44	11.04	0.37	10.87	0.35
	1.00	10.74	0.37	12.90	0.40	17.15	0.47	23.05	0.58	29.81	0.69	36.11	0.80	40.40	0.87	41.32	0.89	38.68	0.87	32.85	0.80	25.74	0.70	18.97	0.58	13.77	0.48	10.96	0.40	10.76	0.37
	1.50	10.66	0.38	12.77	0.41	16.96	0.48	22.81	0.59	29.52	0.71	35.80	0.81	40.09	0.88	41.03	0.91	38.44	0.88	32.67	0.82	25.61	0.71	18.89	0.60	13.72	0.49	10.90	0.41	10.67	0.38
	2.00	10.59	0.38	12.65	0.40	16.80	0.48	22.60	0.58	29.27	0.70	35.54	0.80	39.84	0.88	40.81	0.90	38.26	0.88	32.53	0.81	25.53	0.71	18.84	0.60	13.68	0.49	10.86	0.41	10.60	0.38
	2.50	10.52	0.37	12.54	0.40	16.64	0.47	22.40	0.58	29.04	0.69	35.29	0.80	39.60	0.87	40.60	0.89	38.09	0.87	32.41	0.80	25.45	0.70	18.80	0.59	13.65	0.48	10.83	0.41	10.54	0.37
	3.00	10.46	0.37	12.44	0.39	16.48	0.46	22.20	0.57	28.81	0.68	35.04	0.79	39.35	0.86	40.38	0.89	37.91	0.86	32.29	0.80	25.38	0.70	18.76	0.58	13.63	0.48	10.79	0.40	10.48	0.37
	3.50	10.39	0.37	12.32	0.39	16.32	0.46	21.98	0.57	28.55	0.68	34.77	0.79	39.08	0.86	40.14	0.88	37.72	0.86	32.14	0.79	25.29	0.69	18.71	0.58	13.60	0.48	10.75	0.40	10.41	0.37

Line #3	4.00	10.31	0.37	12.19	0.40	16.13	0.47	21.73	0.58	28.25	0.69	34.43	0.80	38.73	0.87	39.80	0.90	37.43	0.87	31.93	0.80	25.14	0.70	18.62	0.59	13.54	0.48	10.70	0.41	10.33	0.37
	4.50	10.22	0.39	12.05	0.41	15.93	0.48	21.46	0.59	27.91	0.71	34.04	0.82	38.32	0.90	39.42	0.92	37.10	0.90	31.67	0.83	24.96	0.73	18.51	0.61	13.47	0.50	10.63	0.42	10.23	0.39
	5.00	10.17	0.39	11.96	0.41	15.80	0.48	21.31	0.59	27.76	0.71	33.90	0.81	38.22	0.89	39.35	0.91	37.06	0.89	31.66	0.82	24.97	0.72	18.52	0.61	13.47	0.50	10.61	0.42	10.18	0.39
	5.50	10.12	0.39	11.88	0.41	15.67	0.48	21.15	0.58	27.58	0.70	33.73	0.80	38.07	0.87	39.23	0.90	36.99	0.87	31.62	0.81	24.96	0.71	18.53	0.60	13.48	0.50	10.60	0.42	10.14	0.39
	6.00	9.96	0.40	11.65	0.42	15.35	0.50	20.70	0.61	26.99	0.74	33.01	0.85	37.26	0.92	38.41	0.95	36.25	0.93	31.03	0.85	24.53	0.75	18.25	0.63	13.30	0.51	10.46	0.43	9.98	0.40
	6.51	9.74	0.44	11.36	0.47	14.93	0.56	20.11	0.69	26.21	0.82	32.05	0.94	36.19	1.03	37.33	1.06	35.26	1.03	30.21	0.95	23.94	0.83	17.85	0.70	13.03	0.57	10.25	0.48	9.76	0.44
	6.82	9.70	0.46	11.29	0.48	14.84	0.57	20.01	0.69	26.11	0.83	31.98	0.95	36.15	1.03	37.30	1.06	35.23	1.04	30.18	0.96	23.93	0.84	17.84	0.71	13.02	0.59	10.22	0.49	9.71	0.46
	7.02	9.70	0.44	11.29	0.46	14.84	0.55	20.02	0.67	26.16	0.80	32.06	0.91	36.26	1.00	37.38	1.04	35.28	1.02	30.23	0.95	24.02	0.82	17.90	0.69	13.04	0.57	10.24	0.48	9.72	0.44
	7.24	9.71	0.37	11.30	0.39	14.86	0.47	20.06	0.59	26.21	0.71	32.12	0.83	36.32	0.91	37.42	0.96	35.28	0.96	30.25	0.90	24.09	0.73	17.93	0.60	13.05	0.51	10.27	0.41	9.74	0.37
	7.47	9.71	0.26	11.30	0.27	14.87	0.33	20.06	0.43	26.19	0.56	32.04	0.68	36.20	0.77	37.29	0.82	35.18	0.85	30.19	0.79	24.10	0.57	17.82	0.45	13.01	0.40	10.26	0.31	9.74	0.25
	7.70	9.69	0.17	11.29	0.14	14.85	0.16	20.01	0.23	26.04	0.35	31.74	0.48	35.88	0.54	36.98	0.57	35.02	0.61	29.95	0.52	24.01	0.37	17.75	0.24	12.98	0.21	10.22	0.21	9.72	0.15
	7.94	9.57	0.18	11.20	0.16	14.73	0.18	19.81	0.26	25.69	0.38	31.27	0.50	35.41	0.53	36.51	0.55	34.62	0.55	29.42	0.45	23.72	0.39	17.67	0.31	12.83	0.24	10.13	0.22	9.64	0.18
	8.17	9.32	0.25	10.90	0.26	14.32	0.33	19.23	0.44	24.95	0.55	30.46	0.65	34.38	0.71	35.46	0.73	33.44	0.74	28.63	0.58	22.86	0.57	16.76	0.33	12.49	0.32	9.94	0.30	9.44	0.28
	8.40	8.98	0.39	10.46	0.43	13.68	0.52	18.33	0.64	23.72	0.78	28.87	0.90	32.44	0.99	33.44	1.02	31.61	0.99	27.13	0.90	21.58	0.78	15.86	0.59	11.93	0.52	9.55	0.44	9.08	0.41
	8.68	8.70	0.46	10.13	0.50	13.22	0.60	17.67	0.74	22.83	0.88	27.77	1.01	31.20	1.10	32.15	1.13	30.40	1.10	26.14	1.00	20.82	0.88	15.38	0.69	11.55	0.61	9.27	0.51	8.80	0.48
	8.96	8.54	0.46	9.92	0.49	12.94	0.60	17.31	0.74	22.39	0.88	27.25	1.01	30.64	1.10	31.59	1.13	29.87	1.09	25.70	1.00	20.48	0.88	15.12	0.70	11.36	0.61	9.11	0.51	8.63	0.47
	9.25	8.62	0.31	10.01	0.33	13.10	0.42	17.58	0.54	22.82	0.66	27.87	0.76	31.39	0.83	32.40	0.86	30.62	0.82	26.34	0.73	20.94	0.66	15.41	0.51	11.60	0.46	9.24	0.36	8.73	0.32
	9.57	8.56	0.26	9.92	0.28	12.99	0.34	17.46	0.41	22.68	0.50	27.71	0.58	31.23	0.63	32.25	0.64	30.48	0.62	26.23	0.56	20.86	0.48	15.34	0.39	11.57	0.34	9.21	0.28	8.67	0.26
	10.39	8.13	0.34	9.39	0.37	12.29	0.45	16.53	0.56	21.51	0.67	26.31	0.78	29.69	0.86	30.70	0.88	29.05	0.86	25.02	0.79	19.94	0.69	14.68	0.56	11.06	0.45	8.79	0.38	8.24	0.35
	11.25	7.36	0.43	8.46	0.47	11.03	0.56	14.82	0.70	19.26	0.84	23.56	0.97	26.59	1.06	27.52	1.09	26.08	1.06	22.51	0.97	18.01	0.85	13.30	0.70	10.04	0.57	7.98	0.48	7.46	0.44
	11.92	6.21	0.57	7.10	0.61	9.20	0.74	12.27	0.91	15.85	1.09	19.30	1.26	21.72	1.37	22.47	1.41	21.34	1.37	18.50	1.26	14.90	1.10	11.10	0.91	8.43	0.74	6.74	0.62	6.29	0.58
	12.50	5.53	0.44	6.30	0.48	8.19	0.57	10.98	0.70	14.29	0.85	17.50	0.97	19.79	1.06	20.52	1.09	19.50	1.06	16.87	0.96	13.57	0.84	10.07	0.69	7.61	0.57	6.05	0.48	5.60	0.44
	13.04	2.97	0.61	3.35	0.66	4.24	0.81	5.49	1.02	6.88	1.25	8.18	1.46	9.06	1.60	9.32	1.65	8.89	1.60	7.83	1.45	6.46	1.26	4.98	1.01	3.90	0.81	3.19	0.67	3.00	0.62
	13.56	0.28	0.69	0.32	0.75	0.37	0.90	0.41	1.12	0.43	1.36	0.42	1.57	0.39	1.72	0.37	1.77	0.36	1.72	0.37	1.57	0.36	1.37	0.34	1.11	0.31	0.90	0.29	0.75	0.29	0.70
	13.66	0.02	0.53	0.03	0.58	0.03	0.71	0.03	0.90	0.03	1.11	0.03	1.30	0.03	1.42	0.03	1.47	0.02	1.43	0.02	1.29	0.02	1.11	0.02	0.89	0.02	0.71	0.02	0.58	0.02	0.54
Line #4	0.00	11.02	0.26	13.28	0.29	17.68	0.35	23.76	0.44	30.68	0.55	37.11	0.64	41.45	0.70	42.34	0.72	39.59	0.70	33.60	0.64	26.30	0.55	19.36	0.44	14.05	0.35	11.20	0.29	11.04	0.26
	0.50	10.85	0.35	13.05	0.37	17.37	0.44	23.34	0.54	30.15	0.65	36.49	0.75	40.78	0.82	41.68	0.85	38.99	0.82	33.10	0.76	25.93	0.66	19.10	0.55	13.86	0.44	11.04	0.37	10.87	0.35
	1.00	10.74	0.37	12.90	0.40	17.15	0.47	23.05	0.58	29.81	0.69	36.11	0.80	40.40	0.87	41.32	0.89	38.68	0.87	32.85	0.80	25.74	0.70	18.97	0.58	13.77	0.48	10.96	0.40	10.76	0.37
	1.50	10.66	0.38	12.77	0.41	16.96	0.48	22.81	0.59	29.52	0.71	35.80	0.81	40.09	0.88	41.03	0.91	38.44	0.88	32.67	0.82	25.61	0.71	18.89	0.60	13.72	0.49	10.90	0.41	10.67	0.38
	2.00	10.59	0.38	12.65	0.40	16.80	0.48	22.60	0.58	29.27	0.70	35.54	0.80	39.84	0.88	40.81	0.90	38.26	0.88	32.53	0.81	25.53	0.71	18.84	0.60	13.68	0.49	10.86	0.41	10.60	0.38
	2.50	10.52	0.37	12.54	0.40	16.64	0.47	22.40	0.58	29.04	0.69	35.29	0.80	39.60	0.87	40.60	0.89	38.09	0.87	32.41	0.80	25.45	0.70	18.80	0.59	13.65	0.48	10.83	0.41	10.54	0.37
	3.00	10.46	0.37	12.44	0.39	16.48	0.46	22.20	0.57	28.81	0.68	35.04	0.79	39.35	0.86	40.38	0.89	37.91	0.86	32.29	0.80	25.38	0.70	18.76	0.58	13.63	0.48	10.79	0.40	10.48	0.37
	3.50	10.39	0.37	12.32	0.39	16.32	0.46	21.98	0.57	28.55	0.68	34.77	0.79	39.08	0.86	40.14	0.88	37.72	0.86	32.14	0.79	25.29	0.69	18.71	0.58	13.60	0.48	10.75	0.40	10.41	0.37
	4.00	10.31	0.37	12.19	0.40	16.13	0.47	21.73	0.58	28.25	0.69	34.43	0.80	38.73	0.87	39.80	0.90	37.43	0.87	31.93	0.80	25.14	0.70	18.62	0.59	13.54	0.48	10.70	0.41	10.33	0.37
	4.50	10.22	0.39	12.05	0.41	15.93	0.48	21.46	0.59	27.91	0.71	34.04	0.82	38.32	0.90	39.42	0.92	37.10	0.90	31.67	0.83	24.96	0.73	18.51	0.61	13.47	0.50	10.63	0.42	10.23	0.39
	5.00	10.17	0.39	11.96	0.41	15.80	0.48	21.31	0.59	27.76	0.71	33.90	0.81	38.22	0.89	39.35	0.91	37.06	0.89	31.66	0.82	24.97	0.72	18.52	0.61	13.47	0.50	10.61	0.42	10.18	0.39
	5.50	10.12	0.39	11.88	0.41	15.67	0.48	21.15	0.58	27.58	0.70	33.73	0.80	38.07	0.87	39.23	0.90	36.99	0.87	31.62	0.81	24.96	0.71	18.53	0.60	13.48	0.50	10.60	0.42	10.14	0.39
	6.00	9.96	0.40	11.65	0.42	15.35	0.50	20.70	0.61	26.99	0.74	33.01	0.85	37.26	0.92	38.41	0.95	36.25	0.93	31.03	0.85	24.53	0.75	18.25	0.63	13.30	0.51	10.46	0.43	9.98	0.40
	6.51	9.74	0.44	11.36	0.47	14.93	0.56	20.11	0.69	26.21	0.82	32.05	0.94	36.19	1.03	37.33	1.06	35.26	1.03	30.21	0.95	23.94	0.83	17.85	0.70	13.03	0.57	10.25	0.48	9.76	0.44
	6.82	9.70	0.46	11.29	0.48	14.84	0.57	20.01	0.69	26.11	0.83	31.98	0.95	36.15	1.03	37.30	1.06	35.23	1.04	30.18	0.96	23.93	0.84	17.84	0.71	13.02	0.59	10.22	0.49	9.71	0.46
	7.02	9.70	0.44	11.29	0.46	14.84	0.55	20.02	0.67	26.16	0.80	32.06	0.91	36.26	1.00	37.38	1.04	35.28	1.02	30.23	0.95	24.02	0.82	17.90	0.69	13.04	0.57	10.24	0.48	9.72	0.44
	7.24	9.71	0.37	11.30	0.39	14.86	0.47	20.06	0.59	26.21	0.71	32.12	0.83	36.32	0.91	37.42	0.96	35.28	0.96	30.25	0.90	24.09	0.73	17.93	0.60	13.05	0.51	10.27	0.41	9.74	0.37
	7.47	9.71	0.26	11.30	0.27	14.87	0.33	20.06	0.43	26.19	0.56	32.04	0.68	36.20	0.77	37.29	0.82	35.18	0.85	30.19	0.79	24.10	0.57	17.82	0.45	13.01	0.40	10.26	0.31	9.74	0.25
	7.70	9.69	0.17	11.29	0.14	14.85	0.16	20.01	0.23	26.04	0.35	31.74	0.48	35.88	0.54	36.98	0.57	35.02	0.61	29.95	0.52	24.01	0.37	17.75	0.24	12.98	0.21	10.22	0.21	9.72	0.15
	7.94	9.57	0.18	11.20	0.16	14.73	0.18	19.81	0.26	25.69	0.38	31.27	0.50	35.41	0.53	36.51	0.55	34.62	0.55	29.42	0.45	23.72	0.39	17.67	0.31	12.83	0.24	10.13	0.22	9.64	0.18
	8.17	9.32	0.25	10.90	0.26	14.32	0.33	19.23	0.44	24.95	0.55	30.46	0.65	34.38	0.71	35.46	0.73	33.44	0.74	28.63	0.58	22.86	0.57	16.76	0.33	12.49	0.32	9.94	0.30	9.44	0.28
	8.40	8.98	0.39	10.46	0.43	13.68	0.52	18.33	0.64	23.72	0.78	28.87	0.90	32.44	0.99	33.44	1.02	31.61	0.99	27.13	0.90	21.58	0.78	15.86	0.59	11.93	0.52	9.55	0.44	9.08	0.41
	8.68	8.70	0.46	10.13	0.50	13.22	0.60	17.67	0.74	22.83	0.88	27.77	1.01	31.20	1.10	32.15	1.13	30.40	1.10	26.14	1.00	20.82	0.88	15.38	0.69	11.55	0.61	9.27	0.51	8.80	0.48
	8.96	8.54	0.46	9.92	0.49	12.94	0.60	17.31	0.74	22.39	0.88	27.25	1.01	30.64	1.10	31.59	1.13	29.87	1.09	25.70	1.00	20.48	0.88	15.12	0.70	11.36	0.61	9.11	0.51	8.63	0.47
	9.19	8.42	0.06	9.77	0.07	12.74	0.08	17.01	0.09	21.97	0.09	26.70	0.09	30.00	0.08	30.92	0.07	29.24	0.07	25.19	0.07	20.10	0.08	14.87	0.07	11.20	0.07	8.97	0.06	8.51	0.06
	9.43	8.38	0.35	9.72	0.38	12.67	0.45	16.94	0.55	21.93	0.68	26.73	0.79	30.11	0.88	31.06	0.91	29.40	0.88	25.29	0.80	20.16	0.70	14.88	0.56	11.16	0.46	8.93	0.37	8.46	0.35
	9.93	7.90	0.42	9.14	0.46	11.91	0.54	15.91	0.66	20.63	0.79	25.17	0.91	28.39	0.99	29.31	1.02	27.78	0.99	23.89	0.91	19.06	0.80	14.08	0.66	10.54	0.54	8.44	0.46	7.98	0.43
	10.43	7.36	0.41	8.50	0.44	11.05	0.54	14.77	0.67	19.14	0.81	23.36	0.94	26.35	1.03	27.22	1.06	25.82	1.03	22.23	0.94	17.77	0.82	13.14	0.66	9.85	0.54	7.88	0.44	7.43	0.41
	10.94	6.71	0.49	7.73	0.53	10.04	0.64	13.40	0.79	17.36	0.95	21.20	1.10	23.92	1.20	24.73	1.24	23.47	1.21	20.23	1.10	16.20	0.96	12.00	0.79	9.00	0.64	7.20	0.54	6.78	0.50
	11.44	5.91	0.54	6.78	0.58	8.78	0.69	11.70	0.86	15.13	1.04	18.45	1.20	20.82	1.31	21.53	1.35	20.46	1.31	17.66	1.20	14.18	1.05	10.54	0.86	7.93	0.70	6.35	0.58	5.97	0.54
	11.94	5.16	0.46	5.90	0.50	7.64	0.61	10.22	0.76	13.28	0.93	16.26	1.08	18.41	1.18	19.07	1.22	18.14	1.19	15.66	1.08	12.57	0.94	9.32	0.76	6.99	0.61	5.57	0.51	5.21	0.47
	12.45	4.77	0.43	5.45	0.46	7.11	0.54	9.62	0.65	12.65	0.78	15.64	0.89	17.84	0.96	18.55	0.99	17.65	0.96	15.18	0.88	12.13	0.78	8.91	0.65	6.61	0.54	5.21	0.46	4.82	0.43
	12.96	3.56	0.57	4.06	0.62	5.30	0.73	7.19	0.90	9.49	1.08	11.77	1.24	13.45	1.35	14.01	1.39	13.34	1.35	11.47	1.24	9.16	1.09	6.72	0.90	4.97	0.74	3.90	0.62	3.60	0.58
	13.52	1.22	0.75	1.39	0.80	1.81	0.95	2.46	1.16	3.24	1.39	4.03	1.59	4.60	1.74	4.80	1.78	4.57	1.74	3.94	1.60	3.15	1.41	2.31	1.16	1.71	0.96	1.34	0.81	1.23	0.75
	13.63	0.59	0.78	0.67	0.83	0.88	0.99	1.19	1.21	1.58	1.45	1.97	1.66	2.25	1.81	2.35	1.86	2.24	1.81	1.93	1.66	1.54	1.46	1.12	1.21	0.83	1.00	0.65	0.84	0.60	0.78
Line #5	0.00	11.02	0.26	13.28	0.29	17.68	0.35	23.76	0.44	30.68	0.55	37.11	0.64	41.45	0.70	42.34	0.72	39.59	0.70	33.60	0.64	26.30	0.55	19.36	0.44	14.05	0.35	11.20	0.29	11.04	0.26
	0.50	10.85	0.35	13.05	0.37	17.37	0.44	23.34	0.54	30.15	0.65	36.49	0.75	40.78	0.82	41.68	0.85	38.99	0.82	33.10	0.76	25.93	0.66	19.10	0.55	13.86	0.44	11.04	0.37	10.87	0.35
	1.00	10.74	0.37	12.90	0.40	17.15	0.47	23.05	0.58	29.81	0.69	36.11	0.80	40.40	0.87	41.32	0.89	38.68	0.87	32.85	0.80	25.74	0.70	18.97	0.58	13.77	0.48	10.96	0.40	10.76	0.37
	1.50	10.66	0.38	12.77	0.41	16.96	0.48	22.81	0.59	29.52	0.71	35.80	0.81	40.09	0.88	41.03	0.91	38.44	0.88	32.67	0.82	25.61	0.71	18.89	0.60	13.72	0.49	10.90	0.41	10.67	0.38
	2.00	10.59	0.38	12.65	0.40	16.80	0.48	22.60	0.58	29.27	0.70	35.54	0.80	39.84	0.88	40.81	0.90	38.26	0.88	32.53	0.81	25.53	0.71	18.84	0.60	13.68	0.49	10.86	0.41	10.60	0.38
	2.50	10.52	0.37	12.54	0.40	16.64	0.47	22.40	0.58	29.04	0.69	35.29	0.80	39.60	0.87	40.60	0.89	38.09	0.87	32.41	0.80	25.45	0.70	18.80	0.59	13.65	0.48	10.83	0.41	10.54	0.37
	3.00	10.46	0.37	12.44	0.39	16.48	0.46	22.20	0.57	28.81	0.68	35.04	0.79	39.35	0.86	40.38	0.89	37.91	0.86	32.29	0.80	25.38	0.70	18.76	0.58	13.63	0.48	10.79	0.40	10.48	0.37
	3.50	10.39	0.37	12.32	0.39	16.32	0.46	21.98	0.57	28.55	0.68	34.77	0.79	39.08	0.86	40.14	0.88	37.72	0.86	32.14	0.79	25.29	0.69	18.71	0.58	13.60	0.48	10.75	0.40	10.41	0.37
	4.00	10.31	0.37	12.19	0.40	16.13	0.47	21.73	0.58	28.25	0.69	34.43	0.80	38.73	0.87	39.80	0.90	37.43	0.87	31.93	0.80	25.14	0.70	18.62	0.59	13.54	0.48	10.70	0.41	10.33	0.37
	4.50	10.22	0.39	12.05	0.41	15.93	0.48	21.46	0.59	27.91	0.71	34.04	0.82	38.32	0.90	39.42	0.92	37.10	0.90	31.67	0.83	24.96	0.73	18.51	0.61	13.47	0.50	10.63	0.42	10.23	0.39
	5.00	10.17	0.39	11.96	0.41	15.80	0.48	21.31	0.59	27.76	0.71	33.90	0.81	38.22	0.89	39.35	0.91	37.06	0.89	31.66	0.82	24.97	0.72	18.52	0.61	13.47	0.50	10.61	0.42	10.18	0.39
	5.56	10.03	0.18	11.80	0.19	15.57	0.22	20.97	0.25	27.27	0.27	33.26	0.29	37.45	0.30	38.53	0.30	36.29	0.29	31.02	0.27	24.50	0.25	18.20	0.22	13.27	0.20	10.47	0.18	10.05	0.18
	5.85	9.95	0.23	11.70	0.25	15.43	0.31	20.78	0.38	27.05	0.46	33.02	0.52	37.21	0.57	38.30	0.59	36.09	0.57	30.85	0.52	24.35	0.46	18.08	0.38	13.18	0.31	10.39	0.26	9.97	0.24
	6.36	9.71	0.28	11.40	0.30	15.02	0.37	20.22	0.46	26.30	0.56	32.09	0.65	36.17	0.71	37.24	0.73	35.11	0.71	30.03	0.65	23.74	0.56	17.65	0.46	12.88	0.37	10.16	0.30	9.73	0.28
	7.12	9.05	0.35	10.59	0.38	13.90	0.47	18.66	0.59	24.20	0.72	29.47	0.85	33.17	0.93	34.14	0.96	32.21	0.93	27.62	0.85	21.89	0.72	16.35	0.59	11.97	0.46	9.47	0.38	9.06	0.35
	7.96	7.79	0.45	9.09	0.50	11.88	0.61	15.86	0.77	20.47	0.94	24.84	1.09	27.89	1.20	28.69	1.24	27.10	1.20	23.30	1.09	18.56	0.94	13.94	0.76	10.27	0.61	8.15	0.49	7.81	0.45
	8.67	6.85	0.51	7.97	0.55	10.42	0.67	13.93	0.84	18.04	1.02	21.95	1.17	24.71	1.28	25.46	1.32	24.07	1.28	20.70	1.17	16.48	1.02	12.37	0.84	9.11	0.67	7.21	0.55	6.87	0.51
	9.17	6.29	0.46	7.30	0.50	9.55	0.61	12.82	0.76	16.66	0.93	20.33	1.08	22.95	1.18	23.69	1.21	22.41	1.18	19.27	1.08	15.34	0.93	11.49	0.76	8.44	0.61	6.65	0.50	6.31	0.46
	9.68	5.64	0.45	6.52	0.49	8.52	0.60	11.44	0.75	14.88	0.92	18.18	1.07	20.54	1.18	21.23	1.21	20.11	1.18	17.32	1.07	13.80	0.92	10.36	0.75	7.61	0.59	5.99	0.48	5.65	0.45
	10.18	4.91	0.29	5.65	0.32	7.37	0.40	9.90	0.52	12.90	0.65	15.79	0.78	17.87	0.88	18.49	0.91	17.53	0.88	15.11	0.78	12.06	0.65	9.06	0.51	6.66	0.39	5.23	0.31	4.92	0.29
	10.69	3.38	0.38	3.87	0.42	5.02	0.52	6.69	0.67	8.66	0.85	10.56	1.01	11.91	1.13	12.32	1.17	11.69	1.13	10.12	1.01	8.12	0.85	6.14	0.67	4.55	0.51	3.60	0.41	3.38	0.38
	11.24	1.12	0.05	1.29	0.06	1.65	0.07	2.18	0.09	2.78	0.12	3.35	0.15	3.76	0.17	3.87	0.17	3.68	0.16	3.21	0.15	2.60	0.12	1.99	0.09	1.49	0.07	1.19	0.06	1.13	0.05

RAA - Simulation - Raw Data

Table A7.8: RAA2 - Finer Resolution - 100% Growth

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
Line #1	0.00	11.05	0.26	13.27	0.28	17.72	0.35	23.96	0.44	31.15	0.54	37.68	0.64	41.97	0.70	43.38	0.72	40.62	0.70	34.70	0.64	26.52	0.54	19.51	0.44	14.18	0.35	11.15	0.28	10.97	0.26
	0.50	10.87	0.35	13.04	0.37	17.39	0.45	23.52	0.55	30.60	0.66	37.04	0.76	41.28	0.83	42.70	0.85	40.00	0.83	34.18	0.76	26.12	0.66	19.23	0.55	13.98	0.45	10.99	0.38	10.80	0.35
	1.00	10.76	0.38	12.88	0.40	17.17	0.48	23.22	0.59	30.22	0.71	36.62	0.81	40.84	0.88	42.27	0.91	39.63	0.88	33.88	0.81	25.91	0.71	19.09	0.60	13.88	0.49	10.90	0.41	10.69	0.38
	1.50	10.68	0.39	12.75	0.41	16.98	0.49	22.99	0.60	29.94	0.72	36.31	0.82	40.53	0.90	41.98	0.92	39.39	0.90	33.71	0.83	25.79	0.73	19.01	0.61	13.83	0.50	10.85	0.42	10.60	0.39
	2.00	10.61	0.39	12.64	0.41	16.82	0.49	22.78	0.60	29.69	0.72	36.04	0.83	40.26	0.90	41.74	0.93	39.20	0.90	33.56	0.83	25.70	0.73	18.97	0.61	13.80	0.50	10.81	0.42	10.53	0.39
	2.50	10.55	0.39	12.53	0.41	16.67	0.49	22.58	0.60	29.46	0.72	35.79	0.83	40.02	0.90	41.53	0.93	39.03	0.91	33.45	0.84	25.63	0.73	18.93	0.62	13.78	0.51	10.78	0.42	10.47	0.39
	3.00	10.48	0.38	12.42	0.41	16.51	0.48	22.38	0.59	29.22	0.71	35.54	0.82	39.77	0.89	41.30	0.92	38.84	0.89	33.32	0.83	25.56	0.72	18.89	0.61	13.76	0.50	10.75	0.42	10.41	0.38
	3.50	10.41	0.38	12.31	0.41	16.34	0.48	22.16	0.59	28.96	0.71	35.25	0.82	39.48	0.89	41.04	0.92	38.63	0.90	33.16	0.83	25.46	0.73	18.84	0.61	13.72	0.50	10.71	0.42	10.34	0.38
	4.00	10.34	0.38	12.19	0.41	16.17	0.48	21.92	0.59	28.68	0.71	34.94	0.82	39.16	0.90	40.73	0.92	38.37	0.90	32.97	0.83	25.34	0.73	18.77	0.61	13.68	0.50	10.66	0.42	10.26	0.38
	4.50	10.25	0.40	12.04	0.42	15.96	0.50	21.64	0.61	28.33	0.74	34.54	0.85	38.74	0.93	40.34	0.95	38.03	0.93	32.71	0.86	25.17	0.75	18.67	0.63	13.61	0.52	10.60	0.44	10.17	0.40
	5.00	10.19	0.41	11.95	0.43	15.83	0.50	21.49	0.61	28.17	0.74	34.40	0.85	38.62	0.92	40.26	0.95	37.98	0.93	32.69	0.86	25.16	0.75	18.67	0.64	13.61	0.53	10.58	0.44	10.12	0.41
	5.50	10.15	0.40	11.87	0.42	15.71	0.49	21.35	0.60	28.03	0.72	34.27	0.83	38.52	0.90	40.19	0.93	37.96	0.91	32.70	0.84	25.18	0.74	18.70	0.62	13.63	0.52	10.57	0.44	10.08	0.40
	6.00	10.00	0.42	11.65	0.44	15.40	0.52	20.91	0.64	27.46	0.77	33.57	0.88	37.75	0.96	39.43	0.99	37.27	0.96	32.15	0.89	24.79	0.78	18.44	0.66	13.47	0.54	10.44	0.46	9.93	0.42
	6.51	9.77	0.45	11.35	0.48	14.96	0.57	20.31	0.70	26.65	0.84	32.58	0.97	36.64	1.05	38.30	1.08	36.25	1.05	31.32	0.97	24.17	0.85	18.04	0.71	13.19	0.58	10.22	0.49	9.70	0.46
	6.82	9.73	0.46	11.29	0.49	14.88	0.58	20.21	0.71	26.55	0.85	32.50	0.97	36.58	1.06	38.27	1.09	36.23	1.06	31.32	0.98	24.16	0.86	18.03	0.73	13.18	0.60	10.20	0.50	9.66	0.47
	7.03	9.72	0.46	11.27	0.48	14.86	0.56	20.21	0.69	26.58	0.83	32.56	0.95	36.65	1.04	38.34	1.08	36.28	1.05	31.32	0.98	24.18	0.87	18.03	0.73	13.19	0.60	10.20	0.51	9.65	0.46
	7.23	9.70	0.41	11.25	0.43	14.85	0.50	20.20	0.61	26.59	0.75	32.57	0.87	36.66	0.96	38.34	1.01	36.26	0.99	31.28	0.95	24.18	0.83	18.01	0.69	13.18	0.55	10.20	0.45	9.65	0.40
	7.45	9.72	0.22	11.27	0.23	14.88	0.26	20.24	0.31	26.64	0.36	32.64	0.40	36.73	0.45	38.44	0.49	36.34	0.47	31.31	0.60	24.22	0.49	17.97	0.43	13.13	0.37	10.23	0.25	9.67	0.19
	7.65	9.73	0.14	11.28	0.14	14.88	0.16	20.25	0.19	26.65	0.22	32.65	0.24	36.74	0.26	38.43	0.29	36.33	0.27	31.29	0.51	24.16	0.44	17.91	0.38	13.16	0.26	10.21	0.22	9.67	0.12
	7.85	9.72	0.10	11.27	0.08	14.88	0.09	20.25	0.11	26.64	0.13	32.64	0.15	36.72	0.16	38.36	0.22	36.26	0.24	31.33	0.30	24.15	0.31	17.91	0.27	13.15	0.13	10.18	0.15	9.65	0.12
	8.05	9.71	0.11	11.27	0.09	14.87	0.08	20.24	0.10	26.63	0.13	32.62	0.15	36.68	0.18	38.29	0.22	36.21	0.25	31.27	0.24	24.08	0.21	17.88	0.27	13.09	0.12	10.13	0.13	9.61	0.17
	8.26	9.70	0.10	11.25	0.10	14.86	0.09	20.21	0.10	26.60	0.13	32.57	0.16	36.57	0.21	38.20	0.23	36.16	0.23	31.22	0.21	23.99	0.22	17.83	0.30	13.02	0.22	10.09	0.16	9.53	0.22
	8.46	9.68	0.12	11.22	0.13	14.81	0.14	20.14	0.16	26.49	0.21	32.34	0.28	36.27	0.34	37.96	0.33	36.01	0.31	31.06	0.26	23.87	0.31	17.74	0.34	12.95	0.27	10.06	0.19	9.47	0.25
	8.66	9.49	0.24	11.00	0.27	14.48	0.32	19.61	0.39	25.63	0.50	31.15	0.61	35.00	0.66	36.60	0.67	34.51	0.69	30.09	0.54	23.31	0.52	17.31	0.47	12.67	0.37	9.92	0.29	9.34	0.31
	8.87	8.84	0.48	10.26	0.50	13.34	0.61	17.79	0.77	23.27	0.92	28.44	1.02	31.90	1.10	33.03	1.17	30.83	1.18	25.72	1.04	21.77	0.85	15.98	0.73	11.92	0.61	9.49	0.45	8.96	0.43
	9.07	8.67	0.33	10.06	0.37	13.09	0.40	17.46	0.46	22.66	0.68	27.66	0.88	31.04	0.98	32.19	0.93	30.01	0.89	25.66	0.45	21.18	0.80	15.67	0.66	11.66	0.56	9.30	0.47	8.79	0.46
	9.60	8.30	0.52	9.60	0.56	12.48	0.65	16.67	0.79	21.66	0.96	26.40	1.11	29.61	1.20	30.78	1.23	28.86	1.22	24.79	1.09	20.25	0.98	15.02	0.82	11.19	0.67	8.89	0.57	8.39	0.53
	9.80	8.15	0.53	9.41	0.56	12.22	0.66	16.32	0.79	21.22	0.96	25.87	1.11	29.01	1.20	30.15	1.22	28.31	1.21	24.31	1.08	19.87	0.97	14.76	0.83	10.99	0.68	8.73	0.58	8.24	0.54
	10.49	7.63	0.37	8.79	0.39	11.40	0.44	15.20	0.51	19.75	0.58	24.07	0.64	26.99	0.68	28.06	0.70	26.35	0.68	22.65	0.63	18.53	0.57	13.79	0.50	10.28	0.43	8.18	0.38	7.71	0.37
	11.22	7.05	0.44	8.10	0.47	10.48	0.55	13.99	0.68	18.20	0.81	22.22	0.92	24.97	1.00	26.00	1.03	24.44	1.01	21.04	0.93	17.20	0.82	12.79	0.69	9.53	0.57	7.58	0.48	7.13	0.44
	12.24	5.98	0.49	6.84	0.52	8.82	0.63	11.77	0.77	15.32	0.93	18.73	1.07	21.07	1.16	21.99	1.20	20.71	1.17	17.86	1.07	14.63	0.95	10.92	0.79	8.13	0.64	6.46	0.54	6.05	0.49
	12.75	5.22	0.53	5.94	0.57	7.65	0.68	10.19	0.85	13.26	1.03	16.21	1.19	18.24	1.30	19.03	1.35	17.96	1.31	15.52	1.20	12.73	1.06	9.54	0.87	7.12	0.70	5.66	0.58	5.28	0.53
	13.15	4.52	0.61	5.14	0.65	6.59	0.78	8.76	0.97	11.38	1.17	13.90	1.35	15.65	1.47	16.35	1.52	15.45	1.48	13.37	1.36	10.98	1.20	8.26	1.00	6.17	0.81	4.91	0.67	4.58	0.61
	13.61	4.15	0.54	4.70	0.58	6.08	0.68	8.21	0.82	10.82	0.97	13.38	1.11	15.18	1.20	15.91	1.23	15.05	1.20	12.97	1.11	10.58	0.98	7.88	0.83	5.81	0.69	4.56	0.59	4.20	0.54
	14.19	2.03	0.71	2.30	0.76	2.97	0.90	4.02	1.08	5.31	1.28	6.59	1.46	7.49	1.58	7.87	1.62	7.45	1.58	6.42	1.46	5.23	1.30	3.90	1.10	2.87	0.91	2.24	0.77	2.06	0.72
Line #2	0.00	11.05	0.26	13.27	0.28	17.72	0.35	23.96	0.44	31.15	0.54	37.68	0.64	41.97	0.70	43.38	0.72	40.62	0.70	34.70	0.64	26.52	0.54	19.51	0.44	14.18	0.35	11.15	0.28	10.97	0.26
	0.50	10.87	0.35	13.04	0.37	17.39	0.45	23.52	0.55	30.60	0.66	37.04	0.76	41.28	0.83	42.70	0.85	40.00	0.83	34.18	0.76	26.12	0.66	19.23	0.55	13.98	0.45	10.99	0.38	10.80	0.35
	1.00	10.76	0.38	12.88	0.40	17.17	0.48	23.22	0.59	30.22	0.71	36.62	0.81	40.84	0.88	42.27	0.91	39.63	0.88	33.88	0.81	25.91	0.71	19.09	0.60	13.88	0.49	10.90	0.41	10.69	0.38
	1.50	10.68	0.39	12.75	0.41	16.98	0.49	22.99	0.60	29.94	0.72	36.31	0.82	40.53	0.90	41.98	0.92	39.39	0.90	33.71	0.83	25.79	0.73	19.01	0.61	13.83	0.50	10.85	0.42	10.60	0.39
	2.00	10.61	0.39	12.64	0.41	16.82	0.49	22.78	0.60	29.69	0.72	36.04	0.83	40.26	0.90	41.74	0.93	39.20	0.90	33.56	0.83	25.70	0.73	18.97	0.61	13.80	0.50	10.81	0.42	10.53	0.39
	2.50	10.55	0.39	12.53	0.41	16.67	0.49	22.58	0.60	29.46	0.72	35.79	0.83	40.02	0.90	41.53	0.93	39.03	0.91	33.45	0.84	25.63	0.73	18.93	0.62	13.78	0.51	10.78	0.42	10.47	0.39
	3.00	10.48	0.38	12.42	0.41	16.51	0.48	22.38	0.59	29.22	0.71	35.54	0.82	39.77	0.89	41.30	0.92	38.84	0.89	33.32	0.83	25.56	0.72	18.89	0.61	13.76	0.50	10.75	0.42	10.41	0.38
	3.50	10.41	0.38	12.31	0.41	16.34	0.48	22.16	0.59	28.96	0.71	35.25	0.82	39.48	0.89	41.04	0.92	38.63	0.90	33.16	0.83	25.46	0.73	18.84	0.61	13.72	0.50	10.71	0.42	10.34	0.38
	4.00	10.34	0.38	12.19	0.41	16.17	0.48	21.92	0.59	28.68	0.71	34.94	0.82	39.16	0.90	40.73	0.92	38.37	0.90	32.97	0.83	25.34	0.73	18.77	0.61	13.68	0.50	10.66	0.42	10.26	0.38
	4.50	10.25	0.40	12.04	0.42	15.96	0.50	21.64	0.61	28.33	0.74	34.54	0.85	38.74	0.93	40.34	0.95	38.03	0.93	32.71	0.86	25.17	0.75	18.67	0.63	13.61	0.52	10.60	0.44	10.17	0.40
	5.00	10.19	0.41	11.95	0.43	15.83	0.50	21.49	0.61	28.17	0.74	34.40	0.85	38.62	0.92	40.26	0.95	37.98	0.93	32.69	0.86	25.16	0.75	18.67	0.64	13.61	0.53	10.58	0.44	10.12	0.41
	5.50	10.15	0.40	11.87	0.42	15.71	0.49	21.35	0.60	28.03	0.72	34.27	0.83	38.52	0.90	40.19	0.93	37.96	0.91	32.70	0.84	25.18	0.74	18.70	0.62	13.63	0.52	10.57	0.44	10.08	0.40
	6.00	10.00	0.42	11.65	0.44	15.40	0.52	20.91	0.64	27.46	0.77	33.57	0.88	37.75	0.96	39.43	0.99	37.27	0.96	32.15	0.89	24.79	0.78	18.44	0.66	13.47	0.54	10.44	0.46	9.93	0.42
	6.51	9.77	0.45	11.35	0.48	14.96	0.57	20.31	0.70	26.65	0.84	32.58	0.97	36.64	1.05	38.30	1.08	36.25	1.05	31.32	0.97	24.17	0.85	18.04	0.71	13.19	0.58	10.22	0.49	9.70	0.46
	6.82	9.73	0.46	11.29	0.49	14.88	0.58	20.21	0.71	26.55	0.85	32.50	0.97	36.58	1.06	38.27	1.09	36.23	1.06	31.32	0.98	24.16	0.86	18.03	0.73	13.18	0.60	10.20	0.50	9.66	0.47
	7.03	9.72	0.46	11.27	0.48	14.86	0.56	20.21	0.69	26.58	0.83	32.56	0.95	36.65	1.04	38.34	1.08	36.28	1.05	31.32	0.98	24.18	0.87	18.03	0.73	13.19	0.60	10.20	0.51	9.65	0.46
	7.23	9.70	0.41	11.25	0.43	14.85	0.50	20.20	0.61	26.59	0.75	32.57	0.87	36.66	0.96	38.34	1.01	36.26	0.99	31.28	0.95	24.18	0.83	18.01	0.69	13.18	0.55	10.20	0.45	9.65	0.40
	7.45	9.72	0.22	11.27	0.23	14.88	0.26	20.24	0.31	26.64	0.36	32.64	0.40	36.73	0.45	38.44	0.49	36.34	0.47	31.31	0.60	24.22	0.49	17.97	0.43	13.13	0.37	10.23	0.25	9.67	0.19
	7.65	9.73	0.14	11.28	0.14	14.88	0.16	20.25	0.19	26.65	0.22	32.65	0.24	36.74	0.26	38.43	0.29	36.33	0.27	31.29	0.51	24.16	0.44	17.91	0.38	13.16	0.26	10.21	0.22	9.67	0.12
	7.85	9.72	0.10	11.27	0.08	14.88	0.09	20.25	0.11	26.64	0.13	32.64	0.15	36.72	0.16	38.36	0.22	36.26	0.24	31.33	0.30	24.15	0.31	17.91	0.27	13.15	0.13	10.18	0.15	9.65	0.12
	8.05	9.71	0.11	11.27	0.09	14.87	0.08	20.24	0.10	26.63	0.13	32.62	0.15	36.68	0.18	38.29	0.22	36.21	0.25	31.27	0.24	24.08	0.21	17.88	0.27	13.09	0.12	10.13	0.13	9.61	0.17
	8.26	9.70	0.10	11.25	0.10	14.86	0.09	20.21	0.10	26.60	0.13	32.57	0.16	36.57	0.21	38.20	0.23	36.16	0.23	31.22	0.21	23.99	0.22	17.83	0.30	13.02	0.22	10.09	0.16	9.53	0.22
	8.46	9.68	0.12	11.22	0.13	14.81	0.14	20.14	0.16	26.49	0.21	32.34	0.28	36.27	0.34	37.96	0.33	36.01	0.31	31.06	0.26	23.87	0.31	17.74	0.34	12.95	0.27	10.06	0.19	9.47	0.25
	8.66	9.49	0.24	11.00	0.27	14.48	0.32	19.61	0.39	25.63	0.50	31.15	0.61	35.00	0.66	36.60	0.67	34.51	0.69	30.09	0.54	23.31	0.52	17.31	0.47	12.67	0.37	9.92	0.29	9.34	0.31
	8.87	8.84	0.48	10.26	0.50	13.34	0.61	17.79	0.77	23.27	0.92	28.44	1.02	31.90	1.10	33.03	1.17	30.83	1.18	25.72	1.04	21.77	0.85	15.98	0.73	11.92	0.61	9.49	0.45	8.96	0.43
	9.07	8.67	0.33	10.06	0.37	13.09	0.40	17.46	0.46	22.66	0.68	27.66	0.88	31.04	0.98	32.19	0.93	30.01	0.89	25.66	0.45	21.18	0.80	15.67	0.66	11.66	0.56	9.30	0.47	8.79	0.46
	9.60	8.30	0.52	9.60	0.56	12.48	0.65	16.67	0.79	21.66	0.96	26.40	1.11	29.61	1.20	30.78	1.23	28.86	1.22	24.79	1.09	20.25	0.98	15.02	0.82	11.19	0.67	8.89	0.57	8.39	0.53
	9.80	8.15	0.53	9.41	0.56	12.22	0.66	16.32	0.79	21.22	0.96	25.87	1.11	29.01	1.20	30.15	1.22	28.31	1.21	24.31	1.08	19.87	0.97	14.76	0.83	10.99	0.68	8.73	0.58	8.24	0.54
	10.12	8.27	0.40	9.54	0.42	12.42	0.51	16.65	0.62	21.75	0.74	26.64	0.87	29.96	0.93	31.14	0.95	29.29	0.95	25.06	0.83	20.46	0.75	15.21	0.66	11.27	0.54	8.92	0.45	8.37	0.41
	10.65	8.15	0.36	9.37	0.38	12.21	0.46	16.38	0.56	21.46	0.67	26.34	0.78	29.66	0.84	30.84	0.87	29.08	0.85	24.84	0.77	20.30	0.68	15.12	0.57	11.20	0.47	8.84	0.39	8.26	0.36
	11.19	7.76	0.42	8.90	0.45	11.58	0.54	15.55	0.66	20.38	0.79	25.06	0.91	28.24	0.99	29.39	1.02	27.76	0.99	23.72	0.91	19.40	0.81	14.47	0.68	10.71	0.55	8.44	0.46	7.86	0.43
	11.76	7.13	0.49	8.14	0.52	10.57	0.62	14.18	0.76	18.58	0.92	22.84	1.06	25.75	1.15	26.80	1.19	25.35	1.16	21.70	1.06	17.77	0.94	13.29	0.78	9.86	0.64	7.77	0.54	7.22	0.49
	12.35	6.14	0.60	6.97	0.64	9.01	0.76	12.03	0.94	15.71	1.12	19.27	1.29	21.70	1.40	22.58	1.44	21.39	1.41	18.38	1.29	15.11	1.14	11.37	0.96	8.47	0.78	6.70	0.66	6.21	0.61
	12.96	5.49	0.51	6.22	0.55	8.07	0.66	10.88	0.82	14.34	1.00	17.74	1.16	20.11	1.26	21.00	1.30	19.91	1.27	17.08	1.16	13.97	1.02	10.46	0.84	7.73	0.68	6.06	0.56	5.56	0.52
	13.66	2.87	0.77	3.24	0.82	4.17	0.97	5.56	1.19	7.27	1.42	8.92	1.62	10.07	1.76	10.50	1.81	9.98	1.77	8.61	1.62	7.09	1.44	5.37	1.21	4.01	1.00	3.16	0.84	2.91	0.78
	14.16	0.07	0.90	0.08	0.96	0.10	1.14	0.13	1.39	0.16	1.66	0.19	1.90	0.20	2.06	0.21	2.12	0.21	2.06	0.18	1.90	0.16	1.68	0.13	1.42	0.10	1.17	0.08	0.98	0.07	0.91
	0.00	11.05	0.26	13.27	0.28	17.72	0.35	23.96	0.44	31.15	0.54	37.68	0.64	41.97	0.70	43.38	0.72	40.62	0.70	34.70	0.64	26.52	0.54	19.51	0.44	14.18	0.35	11.15	0.28	10.97	0.26
	0.50	10.87	0.35	13.04	0.37	17.39	0.45	23.52	0.55	30.60	0.66	37.04	0.76	41.28	0.83	42.70	0.85	40.00	0.83	34.18	0.76	26.12	0.66	19.23	0.55	13.98	0.45	10.99	0.38	10.80	0.35
	1.00	10.76	0.38	12.88	0.40	17.17	0.48	23.22	0.59	30.22	0.71	36.62	0.81	40.84	0.88	42.27	0.91	39.63	0.88	33.88	0.81	25.91	0.71	19.09	0.60	13.88	0.49	10.90	0.41	10.69	0.38
	1.50	10.68	0.39	12.75	0.41	16.98	0.49	22.99	0.60	29.94	0.72	36.31	0.82	40.53	0.90	41.98	0.92	39.39	0.90	33.71	0.83	25.79	0.73	19.01	0.61	13.83	0.50	10.85	0.42	10.60	0.39
	2.00	10.61	0.39	12.64	0.41	16.82	0.49	22.78	0.60	29.69	0.72	36.04	0.83	40.26	0.90	41.74	0.93	39.20	0.90	33.56	0.83	25.70	0.73	18.97	0.61	13.80	0.50	10.81	0.42	10.53	0.39
	2.50	10.55	0.39	12.53	0.41	16.67	0.49	22.58	0.60	29.46	0.72	35.79	0.83	40.02	0.90	41.53	0.93	39.03	0.91	33.45	0.84	25.63	0.73	18.93	0.62	13.78	0.51	10.78	0.42	10.47	0.39
	3.00	10.48	0.38	12.42	0.41	16.51	0.48	22.38	0.59	29.22	0.71	35.54	0.82	39.77	0.89	41.30	0.92	38.84	0.89	33.32	0.83	25.56	0.72	18.89	0.61	13.76	0.50	10.75	0.42	10.41	0.38
	3.50	10.41	0.38	12.31	0.41	16.34	0.48	22.16	0.59	28.96	0.71	35.25	0.82	39.48	0.89	41.04	0.92	38.63	0.90	33.16	0.83	25.46	0.73	18.84	0.61	13.72	0.50	10.71	0.42	10.34	0.38

	4.00	10.34	0.38	12.19	0.41	16.17	0.48	21.92	0.59	28.68	0.71	34.94	0.82	39.16	0.90	40.73	0.92	38.37	0.90	32.97	0.83	25.34	0.73	18.77	0.61	13.68	0.50	10.66	0.42	10.26	0.38
	4.50	10.25	0.40	12.04	0.42	15.96	0.50	21.64	0.61	28.33	0.74	34.54	0.85	38.74	0.93	40.34	0.95	38.03	0.93	32.71	0.86	25.17	0.75	18.67	0.63	13.61	0.52	10.60	0.44	10.17	0.40
	5.00	10.19	0.41	11.95	0.43	15.83	0.50	21.49	0.61	28.17	0.74	34.40	0.85	38.62	0.92	40.26	0.95	37.98	0.93	32.69	0.86	25.16	0.75	18.67	0.64	13.61	0.53	10.58	0.44	10.12	0.41
	5.50	10.15	0.40	11.87	0.42	15.71	0.49	21.35	0.60	28.03	0.72	34.27	0.83	38.52	0.90	40.19	0.93	37.96	0.91	32.70	0.84	25.18	0.74	18.70	0.62	13.63	0.52	10.57	0.44	10.08	0.40
	6.00	10.00	0.42	11.65	0.44	15.40	0.52	20.91	0.64	27.46	0.77	33.57	0.88	37.75	0.96	39.43	0.99	37.27	0.96	32.15	0.89	24.79	0.78	18.44	0.66	13.47	0.54	10.44	0.46	9.93	0.42
	6.51	9.77	0.45	11.35	0.48	14.96	0.57	20.31	0.70	26.65	0.84	32.58	0.97	36.64	1.05	38.30	1.08	36.25	1.05	31.32	0.97	24.17	0.85	18.04	0.71	13.19	0.58	10.22	0.49	9.70	0.46
	6.82	9.73	0.46	11.29	0.49	14.88	0.58	20.21	0.71	26.55	0.85	32.50	0.97	36.58	1.06	38.27	1.09	36.23	1.06	31.32	0.98	24.16	0.86	18.03	0.73	13.18	0.60	10.20	0.50	9.66	0.47
Line #3	7.02	9.74	0.44	11.29	0.47	14.88	0.55	20.23	0.68	26.60	0.82	32.58	0.94	36.70	1.02	38.42	1.05	36.38	1.02	31.46	0.93	24.27	0.82	18.10	0.69	13.23	0.57	10.23	0.48	9.67	0.44
	7.24	9.74	0.35	11.28	0.38	14.87	0.48	20.22	0.60	26.60	0.73	32.59	0.85	36.72	0.92	38.43	0.94	36.41	0.91	31.48	0.80	24.30	0.70	18.13	0.57	13.24	0.46	10.24	0.38	9.66	0.36
	7.47	9.80	0.06	11.33	0.13	14.91	0.27	20.26	0.40	26.65	0.53	32.67	0.63	36.85	0.65	38.56	0.58	36.64	0.52	31.68	0.16	24.38	0.28	18.27	0.14	13.36	0.13	10.27	0.14	9.68	0.18
	7.70	9.74	0.12	11.30	0.10	14.91	0.08	20.28	0.07	26.69	0.03	32.73	0.03	36.82	0.17	38.47	0.13	36.42	0.33	31.36	0.16	24.33	0.17	17.93	0.23	13.17	0.22	10.24	0.15	9.64	0.15
	7.94	9.71	0.15	11.27	0.12	14.90	0.10	20.26	0.08	26.67	0.11	32.68	0.17	36.74	0.29	38.43	0.28	36.20	0.33	31.26	0.30	24.24	0.28	17.69	0.07	13.07	0.26	10.21	0.18	9.55	0.11
	8.17	9.71	0.16	11.28	0.12	14.90	0.09	20.26	0.07	26.68	0.12	32.67	0.21	36.72	0.24	38.32	0.40	36.11	0.24	31.30	0.41	24.06	0.24	17.64	0.03	13.04	0.24	10.12	0.17	9.49	0.07
	8.40	9.76	0.12	11.29	0.09	14.88	0.07	20.29	0.08	26.74	0.11	32.64	0.10	36.60	0.20	38.40	0.27	36.09	0.28	31.45	0.25	23.76	0.18	17.78	0.14	13.16	0.17	9.94	0.09	9.41	0.08
	8.68	9.15	0.43	10.59	0.43	13.89	0.52	18.71	0.65	24.35	0.82	29.50	0.90	32.27	0.96	34.24	1.04	31.86	1.08	28.30	0.95	21.45	0.78	16.33	0.67	12.09	0.58	9.34	0.44	8.93	0.40
	8.96	8.29	0.45	9.68	0.54	12.59	0.67	16.64	0.84	21.00	0.93	25.11	1.19	28.10	1.33	28.09	1.24	26.67	0.89	23.30	1.10	18.73	1.08	14.18	0.80	10.45	0.52	8.59	0.57	8.25	0.51
	9.25	8.63	0.45	10.03	0.47	13.11	0.56	17.55	0.72	22.56	0.89	27.23	1.04	30.55	1.12	30.94	1.21	29.36	1.04	25.74	1.09	20.08	0.87	15.24	0.74	11.19	0.62	8.94	0.46	8.52	0.43
	9.57	8.64	0.28	10.01	0.30	13.09	0.35	17.58	0.42	22.67	0.49	27.45	0.55	30.71	0.56	31.28	0.66	29.90	0.81	26.07	0.53	20.22	0.44	15.37	0.41	11.31	0.36	8.97	0.31	8.52	0.29
	10.39	8.23	0.37	9.50	0.40	12.41	0.48	16.70	0.59	21.63	0.72	26.30	0.82	29.47	0.89	30.12	0.91	28.61	0.89	25.20	0.83	19.49	0.72	14.78	0.60	10.87	0.49	8.56	0.40	8.11	0.37
	11.25	7.45	0.46	8.55	0.49	11.14	0.59	14.96	0.73	19.35	0.88	23.52	1.01	26.35	1.10	26.95	1.12	25.64	1.09	22.64	1.02	17.59	0.88	13.38	0.73	9.88	0.59	7.78	0.49	7.34	0.46
	11.92	6.25	0.61	7.13	0.66	9.22	0.79	12.29	0.97	15.80	1.16	19.10	1.33	21.34	1.44	21.82	1.47	20.80	1.43	18.43	1.34	14.44	1.15	11.07	0.96	8.25	0.79	6.53	0.65	6.16	0.61
	12.50	5.58	0.46	6.35	0.49	8.23	0.58	11.04	0.70	14.27	0.83	17.35	0.93	19.46	1.00	19.94	1.02	19.02	1.00	16.85	0.93	13.18	0.80	10.06	0.68	7.46	0.57	5.87	0.48	5.50	0.45
	13.04	2.95	0.63	3.33	0.69	4.20	0.84	5.43	1.06	6.77	1.28	7.98	1.48	8.77	1.61	8.93	1.65	8.55	1.61	7.68	1.49	6.19	1.26	4.90	1.03	3.78	0.83	3.07	0.68	2.91	0.63
	13.56	0.27	0.74	0.30	0.80	0.35	0.97	0.39	1.20	0.40	1.45	0.38	1.66	0.36	1.81	0.34	1.84	0.33	1.80	0.33	1.67	0.33	1.43	0.32	1.18	0.29	0.96	0.27	0.79	0.27	0.73
	13.66	0.01	0.54	0.01	0.59	0.01	0.72	0.01	0.90	0.00	1.10	-0.01	1.27	-0.02	1.39	-0.03	1.42	-0.03	1.38	-0.02	1.27	-0.01	1.07	0.00	0.88	0.00	0.70	0.01	0.57	0.01	0.53
	0.00	11.05	0.26	13.27	0.28	17.72	0.35	23.96	0.44	31.15	0.54	37.68	0.64	41.97	0.70	43.38	0.72	40.62	0.70	34.70	0.64	26.52	0.54	19.51	0.44	14.18	0.35	11.15	0.28	10.97	0.26
	0.50	10.87	0.35	13.04	0.37	17.39	0.45	23.52	0.55	30.60	0.66	37.04	0.76	41.28	0.83	42.70	0.85	40.00	0.83	34.18	0.76	26.12	0.66	19.23	0.55	13.98	0.45	10.99	0.38	10.80	0.35
	1.00	10.76	0.38	12.88	0.40	17.17	0.48	23.22	0.59	30.22	0.71	36.62	0.81	40.84	0.88	42.27	0.91	39.63	0.88	33.88	0.81	25.91	0.71	19.09	0.60	13.88	0.49	10.90	0.41	10.69	0.38
	1.50	10.68	0.39	12.75	0.41	16.98	0.49	22.99	0.60	29.94	0.72	36.31	0.82	40.53	0.90	41.98	0.92	39.39	0.90	33.71	0.83	25.79	0.73	19.01	0.61	13.83	0.50	10.85	0.42	10.60	0.39
	2.00	10.61	0.39	12.64	0.41	16.82	0.49	22.78	0.60	29.69	0.72	36.04	0.83	40.26	0.90	41.74	0.93	39.20	0.90	33.56	0.83	25.70	0.73	18.97	0.61	13.80	0.50	10.81	0.42	10.53	0.39
	2.50	10.55	0.39	12.53	0.41	16.67	0.49	22.58	0.60	29.46	0.72	35.79	0.83	40.02	0.90	41.53	0.93	39.03	0.91	33.45	0.84	25.63	0.73	18.93	0.62	13.78	0.51	10.78	0.42	10.47	0.39
	3.00	10.48	0.38	12.42	0.41	16.51	0.48	22.38	0.59	29.22	0.71	35.54	0.82	39.77	0.89	41.30	0.92	38.84	0.89	33.32	0.83	25.56	0.72	18.89	0.61	13.76	0.50	10.75	0.42	10.41	0.38
	3.50	10.41	0.38	12.31	0.41	16.34	0.48	22.16	0.59	28.96	0.71	35.25	0.82	39.48	0.89	41.04	0.92	38.63	0.90	33.16	0.83	25.46	0.73	18.84	0.61	13.72	0.50	10.71	0.42	10.34	0.38
	4.00	10.34	0.38	12.19	0.41	16.17	0.48	21.92	0.59	28.68	0.71	34.94	0.82	39.16	0.90	40.73	0.92	38.37	0.90	32.97	0.83	25.34	0.73	18.77	0.61	13.68	0.50	10.66	0.42	10.26	0.38
	4.50	10.25	0.40	12.04	0.42	15.96	0.50	21.64	0.61	28.33	0.74	34.54	0.85	38.74	0.93	40.34	0.95	38.03	0.93	32.71	0.86	25.17	0.75	18.67	0.63	13.61	0.52	10.60	0.44	10.17	0.40
	5.00	10.19	0.41	11.95	0.43	15.83	0.50	21.49	0.61	28.17	0.74	34.40	0.85	38.62	0.92	40.26	0.95	37.98	0.93	32.69	0.86	25.16	0.75	18.67	0.64	13.61	0.53	10.58	0.44	10.12	0.41
	5.50	10.15	0.40	11.87	0.42	15.71	0.49	21.35	0.60	28.03	0.72	34.27	0.83	38.52	0.90	40.19	0.93	37.96	0.91	32.70	0.84	25.18	0.74	18.70	0.62	13.63	0.52	10.57	0.44	10.08	0.40
	6.00	10.00	0.42	11.65	0.44	15.40	0.52	20.91	0.64	27.46	0.77	33.57	0.88	37.75	0.96	39.43	0.99	37.27	0.96	32.15	0.89	24.79	0.78	18.44	0.66	13.47	0.54	10.44	0.46	9.93	0.42
	6.51	9.77	0.45	11.35	0.48	14.96	0.57	20.31	0.70	26.65	0.84	32.58	0.97	36.64	1.05	38.30	1.08	36.25	1.05	31.32	0.97	24.17	0.85	18.04	0.71	13.19	0.58	10.22	0.49	9.70	0.46
	6.82	9.73	0.46	11.29	0.49	14.88	0.58	20.21	0.71	26.55	0.85	32.50	0.97	36.58	1.06	38.27	1.09	36.23	1.06	31.32	0.98	24.16	0.86	18.03	0.73	13.18	0.60	10.20	0.50	9.66	0.47
	7.02	9.74	0.44	11.29	0.47	14.88	0.55	20.23	0.68	26.60	0.82	32.58	0.94	36.70	1.02	38.42	1.05	36.38	1.02	31.46	0.93	24.27	0.82	18.10	0.69	13.23	0.57	10.23	0.48	9.67	0.44
Line #4	7.24	9.74	0.35	11.28	0.38	14.87	0.48	20.22	0.60	26.60	0.73	32.59	0.85	36.72	0.92	38.43	0.94	36.41	0.91	31.48	0.80	24.30	0.70	18.13	0.57	13.24	0.46	10.24	0.38	9.66	0.36
	7.47	9.80	0.06	11.33	0.13	14.91	0.27	20.26	0.40	26.65	0.53	32.67	0.63	36.85	0.65	38.56	0.58	36.64	0.52	31.68	0.16	24.38	0.28	18.27	0.14	13.36	0.13	10.27	0.14	9.68	0.18
	7.70	9.74	0.12	11.30	0.10	14.91	0.08	20.28	0.07	26.69	0.03	32.73	0.03	36.82	0.17	38.47	0.13	36.42	0.33	31.36	0.16	24.33	0.17	17.93	0.23	13.17	0.22	10.24	0.15	9.64	0.15
	7.94	9.71	0.15	11.27	0.12	14.90	0.10	20.26	0.08	26.67	0.11	32.68	0.17	36.74	0.29	38.43	0.28	36.20	0.33	31.26	0.30	24.24	0.28	17.69	0.07	13.07	0.26	10.21	0.18	9.55	0.11
	8.17	9.71	0.16	11.28	0.12	14.90	0.09	20.26	0.07	26.68	0.12	32.67	0.21	36.72	0.24	38.32	0.40	36.11	0.24	31.30	0.41	24.06	0.24	17.64	0.03	13.04	0.24	10.12	0.17	9.49	0.07
	8.40	9.76	0.12	11.29	0.09	14.88	0.07	20.29	0.08	26.74	0.11	32.64	0.10	36.60	0.20	38.40	0.27	36.09	0.28	31.45	0.25	23.76	0.18	17.78	0.14	13.16	0.17	9.94	0.09	9.41	0.08
	8.68	9.15	0.43	10.59	0.43	13.89	0.52	18.71	0.65	24.35	0.82	29.50	0.90	32.27	0.96	34.24	1.04	31.86	1.08	28.30	0.95	21.45	0.78	16.33	0.67	12.09	0.58	9.34	0.44	8.93	0.40
	8.96	8.29	0.45	9.68	0.54	12.59	0.67	16.64	0.84	21.00	0.93	25.11	1.19	28.10	1.33	28.09	1.24	26.67	0.89	23.30	1.10	18.73	1.08	14.18	0.80	10.45	0.52	8.59	0.57	8.25	0.51
	9.19	8.28	0.04	9.64	0.04	12.54	0.05	16.61	0.05	21.04	0.04	25.12	0.04	28.02	0.03	28.20	0.04	26.88	0.05	23.39	0.02	18.73	0.03	14.21	0.02	10.50	0.02	8.56	0.05	8.22	0.05
	9.43	8.15	0.33	9.48	0.35	12.34	0.41	16.36	0.49	20.75	0.60	24.78	0.72	27.65	0.78	27.85	0.79	26.58	0.74	23.12	0.77	18.52	0.58	14.05	0.49	10.36	0.41	8.45	0.35	8.10	0.34
	9.93	7.60	0.45	8.84	0.48	11.49	0.58	15.20	0.71	19.26	0.86	23.02	0.98	25.86	1.07	26.15	1.07	24.71	1.04	21.54	0.97	17.36	0.86	13.11	0.70	9.65	0.57	7.91	0.47	7.58	0.44
	10.43	7.08	0.42	8.21	0.45	10.66	0.55	14.09	0.69	17.86	0.84	21.33	0.97	24.00	1.07	24.29	1.10	22.95	1.06	19.97	0.98	16.14	0.85	12.23	0.67	9.00	0.55	7.38	0.45	7.06	0.41
	10.94	6.46	0.49	7.47	0.53	9.68	0.63	12.80	0.78	16.23	0.94	19.38	1.07	21.82	1.17	22.10	1.20	20.89	1.16	18.19	1.07	14.73	0.93	11.18	0.77	8.25	0.62	6.76	0.52	6.44	0.49
	11.44	5.69	0.54	6.56	0.59	8.48	0.70	11.19	0.87	14.16	1.03	16.90	1.18	19.02	1.28	19.29	1.31	18.24	1.27	15.92	1.16	12.92	1.02	9.84	0.85	7.28	0.69	5.96	0.58	5.68	0.54
	11.94	4.96	0.47	5.69	0.51	7.36	0.62	9.73	0.77	12.36	0.93	14.79	1.07	16.69	1.17	16.97	1.20	16.04	1.15	13.99	1.05	11.36	0.91	8.65	0.75	6.39	0.60	5.22	0.50	4.94	0.47
	12.45	4.62	0.42	5.30	0.45	6.90	0.52	9.23	0.61	11.86	0.70	14.30	0.77	16.24	0.83	16.57	0.84	15.65	0.81	13.61	0.75	11.00	0.67	8.33	0.58	6.09	0.49	4.91	0.44	4.61	0.42
	12.96	3.45	0.57	3.95	0.62	5.15	0.74	6.92	0.91	8.94	1.08	10.82	1.22	12.33	1.33	12.62	1.36	11.91	1.31	10.34	1.21	8.34	1.07	6.30	0.90	4.59	0.73	3.68	0.62	3.44	0.57
	13.52	1.20	0.75	1.37	0.80	1.78	0.96	2.39	1.16	3.08	1.37	3.74	1.54	4.26	1.68	4.36	1.71	4.12	1.66	3.58	1.53	2.89	1.35	2.19	1.14	1.60	0.93	1.28	0.79	1.19	0.74
	13.63	0.58	0.79	0.66	0.85	0.86	1.01	1.15	1.22	1.48	1.44	1.79	1.63	2.04	1.77	2.09	1.81	1.97	1.75	1.71	1.61	1.39	1.42	1.05	1.20	0.77	0.99	0.62	0.84	0.57	0.79
	0.00	11.05	0.26	13.27	0.28	17.72	0.35	23.96	0.44	31.15	0.54	37.68	0.64	41.97	0.70	43.38	0.72	40.62	0.70	34.70	0.64	26.52	0.54	19.51	0.44	14.18	0.35	11.15	0.28	10.97	0.26
	0.50	10.87	0.35	13.04	0.37	17.39	0.45	23.52	0.55	30.60	0.66	37.04	0.76	41.28	0.83	42.70	0.85	40.00	0.83	34.18	0.76	26.12	0.66	19.23	0.55	13.98	0.45	10.99	0.38	10.80	0.35
	1.00	10.76	0.38	12.88	0.40	17.17	0.48	23.22	0.59	30.22	0.71	36.62	0.81	40.84	0.88	42.27	0.91	39.63	0.88	33.88	0.81	25.91	0.71	19.09	0.60	13.88	0.49	10.90	0.41	10.69	0.38
	1.50	10.68	0.39	12.75	0.41	16.98	0.49	22.99	0.60	29.94	0.72	36.31	0.82	40.53	0.90	41.98	0.92	39.39	0.90	33.71	0.83	25.79	0.73	19.01	0.61	13.83	0.50	10.85	0.42	10.60	0.39
	2.00	10.61	0.39	12.64	0.41	16.82	0.49	22.78	0.60	29.69	0.72	36.04	0.83	40.26	0.90	41.74	0.93	39.20	0.90	33.56	0.83	25.70	0.73	18.97	0.61	13.80	0.50	10.81	0.42	10.53	0.39
	2.50	10.55	0.39	12.53	0.41	16.67	0.49	22.58	0.60	29.46	0.72	35.79	0.83	40.02	0.90	41.53	0.93	39.03	0.91	33.45	0.84	25.63	0.73	18.93	0.62	13.78	0.51	10.78	0.42	10.47	0.39
	3.00	10.48	0.38	12.42	0.41	16.51	0.48	22.38	0.59	29.22	0.71	35.54	0.82	39.77	0.89	41.30	0.92	38.84	0.89	33.32	0.83	25.56	0.72	18.89	0.61	13.76	0.50	10.75	0.42	10.41	0.38
	3.50	10.41	0.38	12.31	0.41	16.34	0.48	22.16	0.59	28.96	0.71	35.25	0.82	39.48	0.89	41.04	0.92	38.63	0.90	33.16	0.83	25.46	0.73	18.84	0.61	13.72	0.50	10.71	0.42	10.34	0.38
	4.00	10.34	0.38	12.19	0.41	16.17	0.48	21.92	0.59	28.68	0.71	34.94	0.82	39.16	0.90	40.73	0.92	38.37	0.90	32.97	0.83	25.34	0.73	18.77	0.61	13.68	0.50	10.66	0.42	10.26	0.38
	4.50	10.25	0.40	12.04	0.42	15.96	0.50	21.64	0.61	28.33	0.74	34.54	0.85	38.74	0.93	40.34	0.95	38.03	0.93	32.71	0.86	25.17	0.75	18.67	0.63	13.61	0.52	10.60	0.44	10.17	0.40
Line #5	5.00	10.19	0.41	11.95	0.43	15.83	0.50	21.49	0.61	28.17	0.74	34.40	0.85	38.62	0.92	40.26	0.95	37.98	0.93	32.69	0.86	25.16	0.75	18.67	0.64	13.61	0.53	10.58	0.44	10.12	0.41
	5.56	10.05	0.17	11.78	0.18	15.59	0.20	21.12	0.22	27.63	0.24	33.68	0.24	37.76	0.24	39.33	0.23	37.11	0.23	31.97	0.22	24.64	0.21	18.32	0.19	13.39	0.18	10.42	0.17	9.98	0.17
	5.85	9.97	0.25	11.67	0.26	15.44	0.32	20.93	0.39	27.41	0.46	33.44	0.51	37.53	0.55	39.10	0.56	36.91	0.55	31.79	0.51	24.50	0.45	18.20	0.38	13.30	0.32	10.34	0.27	9.90	0.24
	6.36	9.73	0.30	11.37	0.32	15.02	0.39	20.35	0.48	26.62	0.59	32.47	0.68	36.43	0.74	37.96	0.77	35.85	0.75	30.90	0.69	23.85	0.59	17.74	0.49	12.99	0.40	10.10	0.32	9.66	0.29
	7.12	9.04	0.34	10.54	0.37	13.87	0.46	18.73	0.59	24.43	0.74	29.72	0.86	33.29	0.95	34.68	0.99	32.79	0.96	28.32	0.88	21.94	0.74	16.38	0.59	12.06	0.47	9.39	0.37	8.98	0.34
	7.96	7.78	0.46	9.03	0.50	11.83	0.62	15.87	0.78	20.59	0.96	24.94	1.12	27.85	1.23	28.99	1.28	27.44	1.24	23.77	1.14	18.52	0.96	13.92	0.78	10.33	0.62	8.06	0.50	7.73	0.46
	8.67	6.84	0.56	7.93	0.61	10.38	0.73	13.96	0.91	18.17	1.11	22.07	1.28	24.70	1.39	25.74	1.44	24.41	1.41	21.16	1.30	16.49	1.11	12.37	0.92	9.18	0.75	7.11	0.61	6.80	0.56
	9.17	6.31	0.48	7.29	0.52	9.55	0.64	12.90	0.81	16.86	0.99	20.56	1.15	23.06	1.25	24.08	1.30	22.87	1.27	19.83	1.16	15.44	0.99	11.55	0.81	8.56	0.65	6.59	0.52	6.27	0.48
	9.68	5.67	0.47	6.53	0.51	8.55	0.63	11.56	0.79	15.14	0.97	18.50	1.13	20.78	1.24	21.72	1.28	20.66	1.25	17.94	1.14	14.00	0.97	10.47	0.79	7.75	0.63	5.96	0.51	5.63	0.47
	10.18	4.92	0.30	5.64	0.33	7.36	0.41	9.95	0.53	13.03	0.67	15.94	0.80	17.91	0.89	18.74	0.93	17.85	0.90	15.53	0.81	12.15	0.67	9.10	0.53	6.77	0.41	5.18	0.32	4.89	0.30
	10.69	3.39	0.40	3.87	0.44	5.02	0.55	6.74	0.73	8.79	0.93	10.72	1.12	12.00	1.25	12.55	1.31	11.99	1.27	10.45	1.14	8.21	0.93	6.19	0.73	4.63	0.56	3.57	0.44	3.37	0.40
	11.24	1.11	0.07	1.26	0.08	1.62	0.10	2.15	0.13	2.76	0.17	3.34	0.20	3.66	0.23	3.83	0.24	3.67	0.23	3.22	0.20	2.56	0.16	1.96	0.13	1.49	0.10	1.16	0.07	1.10	0.07

RAA - Simulation - Raw Data

Table A7.9: RAA3 - Finer Resolution

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
Line #1	0.00	10.88	0.26	13.19	0.29	17.62	0.35	23.60	0.44	30.26	0.54	36.27	0.64	40.20	0.70	40.88	0.72	38.04	0.70	32.38	0.64	25.34	0.55	18.59	0.44	13.55	0.35	10.75	0.29	10.72	0.26
	0.50	10.71	0.34	12.96	0.37	17.31	0.44	23.18	0.54	29.72	0.65	35.64	0.75	39.51	0.82	40.20	0.85	37.43	0.82	31.88	0.75	24.97	0.66	18.33	0.55	13.36	0.44	10.60	0.37	10.55	0.34
	1.00	10.61	0.37	12.81	0.40	17.09	0.47	22.89	0.57	29.38	0.69	35.27	0.79	39.13	0.86	39.85	0.89	37.12	0.87	31.64	0.80	24.79	0.70	18.21	0.58	13.29	0.48	10.53	0.40	10.46	0.37
	1.50	10.53	0.38	12.68	0.40	16.91	0.48	22.65	0.58	29.10	0.70	34.96	0.81	38.84	0.88	39.58	0.90	36.90	0.88	31.47	0.81	24.68	0.71	18.14	0.60	13.24	0.49	10.49	0.41	10.38	0.38
	2.00	10.45	0.38	12.57	0.40	16.74	0.47	22.44	0.58	28.85	0.70	34.70	0.80	38.57	0.88	39.34	0.90	36.71	0.88	31.33	0.81	24.59	0.71	18.09	0.60	13.21	0.49	10.45	0.41	10.32	0.38
	2.50	10.39	0.38	12.46	0.40	16.58	0.47	22.23	0.58	28.61	0.70	34.44	0.80	38.33	0.87	39.13	0.90	36.53	0.88	31.21	0.81	24.51	0.71	18.05	0.60	13.19	0.49	10.43	0.41	10.26	0.38
	3.00	10.33	0.36	12.35	0.39	16.42	0.46	22.03	0.56	28.37	0.68	34.19	0.78	38.08	0.85	38.91	0.88	36.36	0.86	31.08	0.79	24.44	0.69	18.01	0.58	13.17	0.48	10.40	0.40	10.20	0.37
	3.50	10.26	0.36	12.24	0.39	16.26	0.46	21.81	0.56	28.11	0.68	33.91	0.78	37.80	0.86	38.65	0.88	36.15	0.86	30.94	0.79	24.35	0.69	17.97	0.58	13.15	0.48	10.37	0.40	10.14	0.37
	4.00	10.18	0.37	12.12	0.39	16.07	0.46	21.57	0.57	27.82	0.69	33.58	0.80	37.47	0.87	38.34	0.90	35.89	0.87	30.74	0.81	24.22	0.70	17.89	0.59	13.10	0.48	10.33	0.40	10.07	0.37
	4.50	10.09	0.39	11.97	0.41	15.86	0.48	21.29	0.59	27.47	0.71	33.19	0.82	37.07	0.90	37.96	0.92	35.57	0.90	30.49	0.83	24.05	0.73	17.79	0.61	13.03	0.50	10.27	0.42	9.98	0.39
	5.00	10.04	0.39	11.88	0.41	15.74	0.48	21.13	0.59	27.32	0.71	33.05	0.81	36.94	0.89	37.88	0.92	35.52	0.89	30.47	0.83	24.05	0.73	17.79	0.61	13.04	0.51	10.26	0.43	9.94	0.39
	5.50	9.99	0.38	11.80	0.40	15.61	0.47	20.97	0.57	27.14	0.69	32.87	0.80	36.78	0.87	37.75	0.90	35.43	0.88	30.42	0.81	24.04	0.71	17.80	0.60	13.05	0.50	10.26	0.42	9.90	0.39
	6.00	9.84	0.40	11.58	0.42	15.29	0.50	20.52	0.61	26.54	0.74	32.14	0.85	35.97	0.93	36.94	0.96	34.70	0.93	29.84	0.86	23.62	0.75	17.54	0.63	12.88	0.52	10.13	0.44	9.75	0.40
	6.51	9.62	0.44	11.28	0.47	14.86	0.55	19.93	0.68	25.76	0.81	31.18	0.94	34.91	1.02	35.86	1.05	33.71	1.02	29.03	0.94	23.03	0.83	17.14	0.69	12.62	0.57	9.92	0.48	9.53	0.44
	6.82	9.58	0.45	11.22	0.48	14.78	0.56	19.84	0.68	25.68	0.81	31.14	0.93	34.90	1.02	35.88	1.05	33.75	1.02	29.06	0.95	23.05	0.83	17.14	0.70	12.62	0.58	9.91	0.49	9.50	0.45
	7.03	9.57	0.43	11.21	0.46	14.76	0.53	19.83	0.65	25.70	0.78	31.20	0.90	35.00	0.99	36.00	1.02	33.87	1.00	29.16	0.92	23.12	0.81	17.19	0.69	12.64	0.57	9.92	0.48	9.50	0.44
	7.23	9.57	0.40	11.19	0.42	14.74	0.50	19.81	0.61	25.71	0.74	31.24	0.86	35.07	0.94	36.09	0.97	33.97	0.94	29.26	0.87	23.20	0.77	17.24	0.65	12.67	0.53	9.93	0.44	9.49	0.40
	7.45	9.45	0.36	11.04	0.38	14.53	0.46	19.52	0.57	25.31	0.70	30.74	0.81	34.50	0.88	35.51	0.91	33.43	0.89	28.81	0.81	22.86	0.70	17.01	0.58	12.52	0.47	9.82	0.39	9.38	0.36
	7.65	9.35	0.39	10.91	0.42	14.35	0.50	19.28	0.61	25.01	0.74	30.39	0.85	34.12	0.93	35.13	0.96	33.09	0.93	28.53	0.86	22.65	0.75	16.86	0.62	12.41	0.51	9.73	0.42	9.28	0.39
	7.85	9.25	0.40	10.79	0.43	14.18	0.51	19.05	0.62	24.72	0.75	30.05	0.85	33.75	0.93	34.76	0.96	32.75	0.93	28.25	0.86	22.44	0.75	16.71	0.63	12.30	0.52	9.64	0.43	9.19	0.40
	8.05	9.16	0.43	10.66	0.46	14.01	0.54	18.82	0.66	24.43	0.79	29.72	0.91	33.39	0.99	34.40	1.02	32.42	0.99	27.97	0.92	22.23	0.80	16.56	0.68	12.19	0.56	9.56	0.47	9.09	0.43
	8.26	9.06	0.44	10.54	0.47	13.84	0.55	18.60	0.68	24.15	0.81	29.38	0.93	33.02	1.01	34.03	1.04	32.08	1.02	27.69	0.94	22.01	0.83	16.41	0.70	12.09	0.57	9.47	0.48	9.00	0.44
	8.46	8.95	0.45	10.40	0.47	13.65	0.56	18.35	0.69	23.83	0.82	29.00	0.95	32.61	1.03	33.62	1.06	31.71	1.03	27.38	0.96	21.77	0.84	16.24	0.71	11.96	0.58	9.37	0.49	8.90	0.45
	8.66	8.84	0.46	10.26	0.49	13.46	0.57	18.08	0.70	23.49	0.84	28.60	0.97	32.17	1.05	33.18	1.08	31.30	1.06	27.04	0.98	21.51	0.86	16.05	0.72	11.83	0.59	9.27	0.50	8.79	0.46
	8.87	8.72	0.46	10.11	0.49	13.25	0.58	17.81	0.71	23.14	0.86	28.18	0.98	31.71	1.07	32.72	1.10	30.88	1.07	26.69	0.99	21.24	0.87	15.86	0.73	11.69	0.60	9.16	0.50	8.67	0.46
	9.07	8.60	0.47	9.95	0.50	13.04	0.59	17.52	0.73	22.77	0.87	27.74	1.00	31.23	1.09	32.23	1.12	30.43	1.09	26.31	1.01	20.95	0.89	15.65	0.75	11.54	0.61	9.04	0.51	8.55	0.47
	9.60	8.22	0.51	9.48	0.54	12.40	0.63	16.66	0.77	21.66	0.93	26.41	1.06	29.75	1.16	30.73	1.19	29.04	1.16	25.14	1.07	20.06	0.94	15.01	0.79	11.09	0.65	8.68	0.55	8.18	0.51
	9.80	8.06	0.53	9.29	0.56	12.14	0.66	16.30	0.81	21.20	0.97	25.85	1.11	29.12	1.20	30.10	1.24	28.45	1.21	24.64	1.12	19.67	0.98	14.73	0.83	10.89	0.68	8.52	0.58	8.02	0.53
	10.49	7.98	0.04	9.18	0.03	11.99	0.03	16.10	0.04	20.93	0.05	25.51	0.08	28.74	0.11	29.70	0.12	28.08	0.13	24.33	0.13	19.44	0.11	14.57	0.10	10.78	0.08	8.44	0.06	7.94	0.05
	11.22	7.07	0.41	8.14	0.44	10.55	0.52	14.01	0.62	17.98	0.74	21.68	0.83	24.23	0.89	24.94	0.91	23.58	0.89	20.52	0.82	16.52	0.72	12.52	0.61	9.37	0.51	7.42	0.44	7.04	0.41
	12.24	5.97	0.47	6.83	0.50	8.83	0.60	11.71	0.73	15.02	0.88	18.11	1.01	20.25	1.09	20.86	1.12	19.76	1.09	17.23	1.01	13.91	0.88	10.58	0.74	7.95	0.60	6.30	0.51	5.95	0.47
	12.75	5.21	0.50	5.94	0.54	7.66	0.65	10.13	0.80	12.99	0.96	15.66	1.10	17.51	1.20	18.05	1.23	17.12	1.20	14.95	1.10	12.11	0.96	9.23	0.80	6.95	0.65	5.52	0.54	5.19	0.50
	13.15	4.52	0.58	5.14	0.62	6.60	0.74	8.74	0.91	11.20	1.09	13.51	1.24	15.11	1.35	15.59	1.39	14.80	1.35	12.94	1.25	10.49	1.10	8.02	0.92	6.05	0.75	4.80	0.63	4.50	0.58
	13.61	4.12	0.52	4.67	0.56	6.06	0.66	8.13	0.79	10.57	0.93	12.90	1.06	14.54	1.14	15.07	1.17	14.30	1.14	12.47	1.06	10.04	0.94	7.59	0.80	5.66	0.66	4.43	0.56	4.11	0.52
	14.19	2.03	0.70	2.30	0.74	2.98	0.87	4.00	1.05	5.22	1.24	6.37	1.40	7.20	1.51	7.47	1.55	7.10	1.51	6.19	1.40	4.99	1.24	3.77	1.05	2.81	0.88	2.19	0.75	2.03	0.70
Line #2	0.00	10.88	0.26	13.19	0.29	17.62	0.35	23.60	0.44	30.26	0.54	36.27	0.64	40.20	0.70	40.88	0.72	38.04	0.70	32.38	0.64	25.34	0.55	18.59	0.44	13.55	0.35	10.75	0.29	10.72	0.26
	0.50	10.71	0.34	12.96	0.37	17.31	0.44	23.18	0.54	29.72	0.65	35.64	0.75	39.51	0.82	40.20	0.85	37.43	0.82	31.88	0.75	24.97	0.66	18.33	0.55	13.36	0.44	10.60	0.37	10.55	0.34
	1.00	10.61	0.37	12.81	0.40	17.09	0.47	22.89	0.57	29.38	0.69	35.27	0.79	39.13	0.86	39.85	0.89	37.12	0.87	31.64	0.80	24.79	0.70	18.21	0.58	13.29	0.48	10.53	0.40	10.46	0.37
	1.50	10.53	0.38	12.68	0.40	16.91	0.48	22.65	0.58	29.10	0.70	34.96	0.81	38.84	0.88	39.58	0.90	36.90	0.88	31.47	0.81	24.68	0.71	18.14	0.60	13.24	0.49	10.49	0.41	10.38	0.38
	2.00	10.45	0.38	12.57	0.40	16.74	0.47	22.44	0.58	28.85	0.70	34.70	0.80	38.57	0.88	39.34	0.90	36.71	0.88	31.33	0.81	24.59	0.71	18.09	0.60	13.21	0.49	10.45	0.41	10.32	0.38
	2.50	10.39	0.38	12.46	0.40	16.58	0.47	22.23	0.58	28.61	0.70	34.44	0.80	38.33	0.87	39.13	0.90	36.53	0.88	31.21	0.81	24.51	0.71	18.05	0.60	13.19	0.49	10.43	0.41	10.26	0.38
	3.00	10.33	0.36	12.35	0.39	16.42	0.46	22.03	0.56	28.37	0.68	34.19	0.78	38.08	0.85	38.91	0.88	36.36	0.86	31.08	0.79	24.44	0.69	18.01	0.58	13.17	0.48	10.40	0.40	10.20	0.37
	3.50	10.26	0.36	12.24	0.39	16.26	0.46	21.81	0.56	28.11	0.68	33.91	0.78	37.80	0.86	38.65	0.88	36.15	0.86	30.94	0.79	24.35	0.69	17.97	0.58	13.15	0.48	10.37	0.40	10.14	0.37
	4.00	10.18	0.37	12.12	0.39	16.07	0.46	21.57	0.57	27.82	0.69	33.58	0.80	37.47	0.87	38.34	0.90	35.89	0.87	30.74	0.81	24.22	0.70	17.89	0.59	13.10	0.48	10.33	0.40	10.07	0.37
	4.50	10.09	0.39	11.97	0.41	15.86	0.48	21.29	0.59	27.47	0.71	33.19	0.82	37.07	0.90	37.96	0.92	35.57	0.90	30.49	0.83	24.05	0.73	17.79	0.61	13.03	0.50	10.27	0.42	9.98	0.39
	5.00	10.04	0.39	11.88	0.41	15.74	0.48	21.13	0.59	27.32	0.71	33.05	0.81	36.94	0.89	37.88	0.92	35.52	0.89	30.47	0.83	24.05	0.73	17.79	0.61	13.04	0.51	10.26	0.43	9.94	0.39
	5.50	9.99	0.38	11.80	0.40	15.61	0.47	20.97	0.57	27.14	0.69	32.87	0.80	36.78	0.87	37.75	0.90	35.43	0.88	30.42	0.81	24.04	0.71	17.80	0.60	13.05	0.50	10.26	0.42	9.90	0.39
	6.00	9.84	0.40	11.58	0.42	15.29	0.50	20.52	0.61	26.54	0.74	32.14	0.85	35.97	0.93	36.94	0.96	34.70	0.93	29.84	0.86	23.62	0.75	17.54	0.63	12.88	0.52	10.13	0.44	9.75	0.40
	6.51	9.62	0.44	11.28	0.47	14.86	0.55	19.93	0.68	25.76	0.81	31.18	0.94	34.91	1.02	35.86	1.05	33.71	1.02	29.03	0.94	23.03	0.83	17.14	0.69	12.62	0.57	9.92	0.48	9.53	0.44
	6.82	9.58	0.45	11.22	0.48	14.78	0.56	19.84	0.68	25.68	0.81	31.14	0.93	34.90	1.02	35.88	1.05	33.75	1.02	29.06	0.95	23.05	0.83	17.14	0.70	12.62	0.58	9.91	0.49	9.50	0.45
	7.03	9.57	0.43	11.21	0.46	14.76	0.53	19.83	0.65	25.70	0.78	31.20	0.90	35.00	0.99	36.00	1.02	33.87	1.00	29.16	0.92	23.12	0.81	17.19	0.69	12.64	0.57	9.92	0.48	9.50	0.44
	7.23	9.57	0.40	11.19	0.42	14.74	0.50	19.81	0.61	25.71	0.74	31.24	0.86	35.07	0.94	36.09	0.97	33.97	0.94	29.26	0.87	23.20	0.77	17.24	0.65	12.67	0.53	9.93	0.44	9.49	0.40
	7.45	9.45	0.36	11.04	0.38	14.53	0.46	19.52	0.57	25.31	0.70	30.74	0.81	34.50	0.88	35.51	0.91	33.43	0.89	28.81	0.81	22.86	0.70	17.01	0.58	12.52	0.47	9.82	0.39	9.38	0.36
	7.65	9.35	0.39	10.91	0.42	14.35	0.50	19.28	0.61	25.01	0.74	30.39	0.85	34.12	0.93	35.13	0.96	33.09	0.93	28.53	0.86	22.65	0.75	16.86	0.62	12.41	0.51	9.73	0.42	9.28	0.39
	7.85	9.25	0.40	10.79	0.43	14.18	0.51	19.05	0.62	24.72	0.75	30.05	0.85	33.75	0.93	34.76	0.96	32.75	0.93	28.25	0.86	22.44	0.75	16.71	0.63	12.30	0.52	9.64	0.43	9.19	0.40
	8.05	9.16	0.43	10.66	0.46	14.01	0.54	18.82	0.66	24.43	0.79	29.72	0.91	33.39	0.99	34.40	1.02	32.42	0.99	27.97	0.92	22.23	0.80	16.56	0.68	12.19	0.56	9.56	0.47	9.09	0.43
	8.26	9.06	0.44	10.54	0.47	13.84	0.55	18.60	0.68	24.15	0.81	29.38	0.93	33.02	1.01	34.03	1.04	32.08	1.02	27.69	0.94	22.01	0.83	16.41	0.70	12.09	0.57	9.47	0.48	9.00	0.44
	8.46	8.95	0.45	10.40	0.47	13.65	0.56	18.35	0.69	23.83	0.82	29.00	0.95	32.61	1.03	33.62	1.06	31.71	1.03	27.38	0.96	21.77	0.84	16.24	0.71	11.96	0.58	9.37	0.49	8.90	0.45
	8.66	8.84	0.46	10.26	0.49	13.46	0.57	18.08	0.70	23.49	0.84	28.60	0.97	32.17	1.05	33.18	1.08	31.30	1.06	27.04	0.98	21.51	0.86	16.05	0.72	11.83	0.59	9.27	0.50	8.79	0.46
	8.87	8.72	0.46	10.11	0.49	13.25	0.58	17.81	0.71	23.14	0.86	28.18	0.98	31.71	1.07	32.72	1.10	30.88	1.07	26.69	0.99	21.24	0.87	15.86	0.73	11.69	0.60	9.16	0.50	8.67	0.46
	9.07	8.60	0.47	9.95	0.50	13.04	0.59	17.52	0.73	22.77	0.87	27.74	1.00	31.23	1.09	32.23	1.12	30.43	1.09	26.31	1.01	20.95	0.89	15.65	0.75	11.54	0.61	9.04	0.51	8.55	0.47
	9.60	8.22	0.51	9.48	0.54	12.40	0.63	16.66	0.77	21.66	0.93	26.41	1.06	29.75	1.16	30.73	1.19	29.04	1.16	25.14	1.07	20.06	0.94	15.01	0.79	11.09	0.65	8.68	0.55	8.18	0.51
	9.80	8.06	0.53	9.29	0.56	12.14	0.66	16.30	0.81	21.20	0.97	25.85	1.11	29.12	1.20	30.10	1.24	28.45	1.21	24.64	1.12	19.67	0.98	14.73	0.83	10.89	0.68	8.52	0.58	8.02	0.53
	10.12	7.98	0.53	9.19	0.55	12.00	0.65	16.11	0.80	20.95	0.96	25.55	1.11	28.79	1.21	29.76	1.25	28.15	1.22	24.39	1.13	19.48	1.00	14.60	0.84	10.80	0.69	8.45	0.58	7.95	0.53
	10.65	8.05	0.41	9.25	0.41	12.09	0.49	16.28	0.63	21.24	0.80	25.98	0.94	29.33	1.04	30.35	1.08	28.71	1.06	24.87	0.98	19.84	0.86	14.84	0.73	10.96	0.59	8.55	0.48	8.02	0.41
	11.19	7.80	0.40	8.91	0.42	11.64	0.51	15.72	0.62	20.60	0.75	25.30	0.87	28.66	0.96	29.74	0.99	28.19	0.96	24.46	0.89	19.53	0.77	14.61	0.64	10.77	0.52	8.36	0.44	7.78	0.40
	11.76	7.17	0.48	8.16	0.51	10.63	0.61	14.34	0.75	18.79	0.91	23.09	1.04	26.17	1.14	27.17	1.18	25.79	1.15	22.41	1.06	17.94	0.93	13.46	0.78	9.94	0.63	7.72	0.53	7.16	0.48
	12.35	6.18	0.59	7.00	0.63	9.07	0.74	12.19	0.91	15.93	1.10	19.52	1.26	22.10	1.37	22.95	1.42	21.82	1.38	19.02	1.27	15.29	1.12	11.53	0.94	8.56	0.77	6.67	0.64	6.17	0.59
	12.96	5.53	0.50	6.24	0.53	8.12	0.64	11.03	0.79	14.57	0.96	18.03	1.10	20.56	1.21	21.43	1.24	20.39	1.21	17.73	1.12	14.19	0.98	10.63	0.82	7.82	0.66	6.03	0.55	5.53	0.50
	13.66	2.88	0.75	3.23	0.80	4.17	0.95	5.60	1.16	7.32	1.39	8.98	1.59	10.19	1.73	10.60	1.79	10.10	1.74	8.84	1.61	7.14	1.42	5.41	1.19	4.03	0.98	3.13	0.82	2.88	0.76
	14.16	0.09	0.87	0.10	0.92	0.13	1.09	0.16	1.33	0.21	1.60	0.25	1.83	0.28	1.99	0.29	2.06	0.28	2.00	0.25	1.85	0.21	1.63	0.17	1.37	0.13	1.12	0.10	0.94	0.09	0.87
	0.00	10.88	0.26	13.19	0.29	17.62	0.35	23.60	0.44	30.26	0.54	36.27	0.64	40.20	0.70	40.88	0.72	38.04	0.70	32.38	0.64	25.34	0.55	18.59	0.44	13.55	0.35	10.75	0.29	10.72	0.26
	0.50	10.71	0.34	12.96	0.37	17.31	0.44	23.18	0.54	29.72	0.65	35.64	0.75	39.51	0.82	40.20	0.85	37.43	0.82	31.88	0.75	24.97	0.66	18.33	0.55	13.36	0.44	10.60	0.37	10.55	0.34
	1.00	10.61	0.37	12.81	0.40	17.09	0.47	22.89	0.57	29.38	0.69	35.27	0.79	39.13	0.86	39.85	0.89	37.12	0.87	31.64	0.80	24.79	0.70	18.21	0.58	13.29	0.48	10.53	0.40	10.46	0.37
	1.50	10.53	0.38	12.68	0.40	16.91	0.48	22.65	0.58	29.10	0.70	34.96	0.81	38.84	0.88	39.58	0.90	36.90	0.88	31.47	0.81	24.68	0.71	18.14	0.60	13.24	0.49	10.49	0.41	10.38	0.38
	2.00	10.45	0.38	12.57	0.40	16.74	0.47	22.44	0.58	28.85	0.70	34.70	0.80	38.57	0.88	39.34	0.90	36.71	0.88	31.33	0.81	24.59	0.71	18.09	0.60	13.21	0.49	10.45	0.41	10.32	0.38
	2.50	10.39	0.38	12.46	0.40	16.58	0.47	22.23	0.58	28.61	0.70	34.44	0.80	38.33	0.87	39.13	0.90	36.53	0.88	31.21	0.81	24.51	0.71	18.05	0.60	13.19	0.49	10.43	0.41	10.26	0.38
	3.00	10.33	0.36	12.35	0.39	16.42	0.46	22.03	0.56	28.37	0.68	34.19	0.78	38.08	0.85	38.91	0.88	36.36	0.86	31.08	0.79	24.44	0.69	18.01	0.58	13.17	0.48	10.40	0.40	10.20	0.37
	3.50	10.26	0.36	12.24	0.39	16.26	0.46	21.81	0.56	28.11	0.68	33.91	0.78	37.80	0.86	38.65	0.88	36.15	0.86	30.94	0.79	24.35	0.69	17.97	0.58	13.15	0.48	10.37	0.40	10.14	0.37

	4.00	10.18	0.37	12.12	0.39	16.07	0.46	21.57	0.57	27.82	0.69	33.58	0.80	37.47	0.87	38.34	0.90	35.89	0.87	30.74	0.81	24.22	0.70	17.89	0.59	13.10	0.48	10.33	0.40	10.07	0.37
	4.50	10.09	0.39	11.97	0.41	15.86	0.48	21.29	0.59	27.47	0.71	33.19	0.82	37.07	0.90	37.96	0.92	35.57	0.90	30.49	0.83	24.05	0.73	17.79	0.61	13.03	0.50	10.27	0.42	9.98	0.39
	5.00	10.04	0.39	11.88	0.41	15.74	0.48	21.13	0.59	27.32	0.71	33.05	0.81	36.94	0.89	37.88	0.92	35.52	0.89	30.47	0.83	24.05	0.73	17.79	0.61	13.04	0.51	10.26	0.43	9.94	0.39
	5.50	9.99	0.38	11.80	0.40	15.61	0.47	20.97	0.57	27.14	0.69	32.87	0.80	36.78	0.87	37.75	0.90	35.43	0.88	30.42	0.81	24.04	0.71	17.80	0.60	13.05	0.50	10.26	0.42	9.90	0.39
	6.00	9.84	0.40	11.58	0.42	15.29	0.50	20.52	0.61	26.54	0.74	32.14	0.85	35.97	0.93	36.94	0.96	34.70	0.93	29.84	0.86	23.62	0.75	17.54	0.63	12.88	0.52	10.13	0.44	9.75	0.40
	6.51	9.62	0.44	11.28	0.47	14.86	0.55	19.93	0.68	25.76	0.81	31.18	0.94	34.91	1.02	35.86	1.05	33.71	1.02	29.03	0.94	23.03	0.83	17.14	0.69	12.62	0.57	9.92	0.48	9.53	0.44
	6.82	9.58	0.45	11.22	0.48	14.78	0.56	19.84	0.68	25.68	0.81	31.14	0.93	34.90	1.02	35.88	1.05	33.75	1.02	29.06	0.95	23.05	0.83	17.14	0.70	12.62	0.58	9.91	0.49	9.50	0.45
	7.02	9.61	0.43	11.25	0.45	14.82	0.52	19.91	0.64	25.82	0.77	31.35	0.88	35.17	0.96	36.18	0.99	34.04	0.96	29.31	0.89	23.24	0.79	17.27	0.67	12.70	0.55	9.96	0.47	9.53	0.43
Line #3	7.24	9.63	0.36	11.27	0.38	14.85	0.45	19.98	0.55	25.93	0.67	31.52	0.77	35.39	0.84	36.43	0.87	34.28	0.85	29.52	0.78	23.40	0.69	17.38	0.58	12.77	0.47	10.01	0.39	9.56	0.36
	7.47	9.55	0.33	11.16	0.36	14.70	0.43	19.76	0.54	25.64	0.65	31.16	0.75	34.98	0.82	36.01	0.85	33.90	0.83	29.21	0.76	23.16	0.66	17.22	0.55	12.67	0.44	9.93	0.36	9.48	0.33
	7.70	9.44	0.33	11.02	0.35	14.50	0.42	19.49	0.52	25.28	0.63	30.71	0.73	34.47	0.79	35.49	0.82	33.42	0.79	28.82	0.73	22.88	0.63	17.03	0.52	12.54	0.42	9.83	0.35	9.38	0.33
	7.94	9.31	0.36	10.85	0.39	14.26	0.46	19.15	0.57	24.83	0.69	30.16	0.79	33.85	0.86	34.85	0.88	32.84	0.86	28.34	0.79	22.52	0.68	16.79	0.57	12.37	0.46	9.70	0.39	9.25	0.36
	8.17	9.15	0.41	10.65	0.43	13.98	0.52	18.76	0.64	24.31	0.77	29.51	0.88	33.11	0.96	34.10	0.99	32.14	0.96	27.75	0.89	22.08	0.77	16.48	0.64	12.16	0.53	9.55	0.44	9.09	0.41
	8.40	8.99	0.44	10.45	0.47	13.70	0.56	18.36	0.69	23.77	0.84	28.84	0.96	32.35	1.05	33.32	1.09	31.42	1.06	27.15	0.97	21.63	0.85	16.17	0.71	11.94	0.58	9.38	0.48	8.93	0.44
	8.68	8.74	0.48	10.14	0.51	13.27	0.61	17.76	0.74	22.97	0.89	27.85	1.03	31.23	1.12	32.16	1.15	30.35	1.12	26.25	1.03	20.94	0.90	15.68	0.75	11.61	0.62	9.13	0.52	8.68	0.48
	8.96	8.58	0.47	9.94	0.50	13.00	0.60	17.40	0.74	22.53	0.89	27.34	1.02	30.68	1.11	31.62	1.14	29.84	1.11	25.82	1.02	20.61	0.89	15.44	0.75	11.43	0.61	8.98	0.51	8.53	0.47
	9.25	8.66	0.31	10.03	0.33	13.14	0.41	17.64	0.51	22.91	0.63	27.88	0.73	31.35	0.80	32.34	0.82	30.52	0.80	26.39	0.73	21.03	0.63	15.72	0.51	11.62	0.41	9.10	0.33	8.61	0.31
	9.57	8.60	0.26	9.94	0.28	13.03	0.34	17.51	0.41	22.76	0.50	27.71	0.57	31.18	0.62	32.18	0.63	30.39	0.61	26.28	0.56	20.95	0.48	15.66	0.40	11.57	0.33	9.06	0.28	8.55	0.26
	10.39	8.18	0.34	9.42	0.37	12.33	0.44	16.59	0.55	21.60	0.67	26.35	0.77	29.70	0.85	30.70	0.87	29.03	0.85	25.14	0.78	20.06	0.68	15.01	0.56	11.09	0.45	8.66	0.37	8.14	0.34
	11.25	7.40	0.44	8.49	0.47	11.07	0.56	14.86	0.70	19.33	0.85	23.58	0.97	26.59	1.06	27.51	1.09	26.05	1.06	22.61	0.98	18.10	0.85	13.59	0.71	10.07	0.58	7.88	0.48	7.38	0.44
	11.92	6.25	0.58	7.13	0.62	9.23	0.74	12.32	0.91	15.95	1.10	19.39	1.26	21.81	1.37	22.55	1.41	21.40	1.37	18.64	1.26	15.01	1.11	11.36	0.92	8.48	0.76	6.66	0.63	6.23	0.58
	12.50	5.57	0.45	6.33	0.48	8.22	0.58	11.03	0.71	14.37	0.85	17.56	0.97	19.83	1.06	20.56	1.09	19.53	1.06	17.00	0.97	13.66	0.85	10.30	0.71	7.66	0.58	5.98	0.48	5.56	0.45
	13.04	2.98	0.61	3.36	0.66	4.26	0.81	5.54	1.02	6.99	1.25	8.31	1.45	9.21	1.59	9.47	1.63	9.03	1.59	7.98	1.45	6.58	1.25	5.12	1.02	3.93	0.82	3.16	0.67	2.97	0.61
	13.56	0.28	0.69	0.31	0.75	0.36	0.90	0.41	1.12	0.44	1.36	0.44	1.57	0.42	1.71	0.39	1.76	0.38	1.71	0.39	1.57	0.37	1.36	0.34	1.13	0.31	0.91	0.28	0.75	0.28	0.69
	13.66	0.02	0.51	0.02	0.56	0.02	0.68	0.01	0.86	0.00	1.06	-0.01	1.23	-0.03	1.35	-0.03	1.40	-0.03	1.35	-0.02	1.23	-0.01	5 1.0574013	0.00	0.86	0.01	0.68	0.01	0.56	0.01	0.51
	0.00	10.88	0.26	13.19	0.29	17.62	0.35	23.60	0.44	30.26	0.54	36.27	0.64	40.20	0.70	40.88	0.72	38.04	0.70	32.38	0.64	25.34	0.55	18.59	0.44	13.55	0.35	10.75	0.29	10.72	0.26
	0.50	10.71	0.34	12.96	0.37	17.31	0.44	23.18	0.54	29.72	0.65	35.64	0.75	39.51	0.82	40.20	0.85	37.43	0.82	31.88	0.75	24.97	0.66	18.33	0.55	13.36	0.44	10.60	0.37	10.55	0.34
	1.00	10.61	0.37	12.81	0.40	17.09	0.47	22.89	0.57	29.38	0.69	35.27	0.79	39.13	0.86	39.85	0.89	37.12	0.87	31.64	0.80	24.79	0.70	18.21	0.58	13.29	0.48	10.53	0.40	10.46	0.37
	1.50	10.53	0.38	12.68	0.40	16.91	0.48	22.65	0.58	29.10	0.70	34.96	0.81	38.84	0.88	39.58	0.90	36.90	0.88	31.47	0.81	24.68	0.71	18.14	0.60	13.24	0.49	10.49	0.41	10.38	0.38
	2.00	10.45	0.38	12.57	0.40	16.74	0.47	22.44	0.58	28.85	0.70	34.70	0.80	38.57	0.88	39.34	0.90	36.71	0.88	31.33	0.81	24.59	0.71	18.09	0.60	13.21	0.49	10.45	0.41	10.32	0.38
	2.50	10.39	0.38	12.46	0.40	16.58	0.47	22.23	0.58	28.61	0.70	34.44	0.80	38.33	0.87	39.13	0.90	36.53	0.88	31.21	0.81	24.51	0.71	18.05	0.60	13.19	0.49	10.43	0.41	10.26	0.38
	3.00	10.33	0.36	12.35	0.39	16.42	0.46	22.03	0.56	28.37	0.68	34.19	0.78	38.08	0.85	38.91	0.88	36.36	0.86	31.08	0.79	24.44	0.69	18.01	0.58	13.17	0.48	10.40	0.40	10.20	0.37
	3.50	10.26	0.36	12.24	0.39	16.26	0.46	21.81	0.56	28.11	0.68	33.91	0.78	37.80	0.86	38.65	0.88	36.15	0.86	30.94	0.79	24.35	0.69	17.97	0.58	13.15	0.48	10.37	0.40	10.14	0.37
	4.00	10.18	0.37	12.12	0.39	16.07	0.46	21.57	0.57	27.82	0.69	33.58	0.80	37.47	0.87	38.34	0.90	35.89	0.87	30.74	0.81	24.22	0.70	17.89	0.59	13.10	0.48	10.33	0.40	10.07	0.37
	4.50	10.09	0.39	11.97	0.41	15.86	0.48	21.29	0.59	27.47	0.71	33.19	0.82	37.07	0.90	37.96	0.92	35.57	0.90	30.49	0.83	24.05	0.73	17.79	0.61	13.03	0.50	10.27	0.42	9.98	0.39
	5.00	10.04	0.39	11.88	0.41	15.74	0.48	21.13	0.59	27.32	0.71	33.05	0.81	36.94	0.89	37.88	0.92	35.52	0.89	30.47	0.83	24.05	0.73	17.79	0.61	13.04	0.51	10.26	0.43	9.94	0.39
	5.50	9.99	0.38	11.80	0.40	15.61	0.47	20.97	0.57	27.14	0.69	32.87	0.80	36.78	0.87	37.75	0.90	35.43	0.88	30.42	0.81	24.04	0.71	17.80	0.60	13.05	0.50	10.26	0.42	9.90	0.39
	6.00	9.84	0.40	11.58	0.42	15.29	0.50	20.52	0.61	26.54	0.74	32.14	0.85	35.97	0.93	36.94	0.96	34.70	0.93	29.84	0.86	23.62	0.75	17.54	0.63	12.88	0.52	10.13	0.44	9.75	0.40
	6.51	9.62	0.44	11.28	0.47	14.86	0.55	19.93	0.68	25.76	0.81	31.18	0.94	34.91	1.02	35.86	1.05	33.71	1.02	29.03	0.94	23.03	0.83	17.14	0.69	12.62	0.57	9.92	0.48	9.53	0.44
	6.82	9.58	0.45	11.22	0.48	14.78	0.56	19.84	0.68	25.68	0.81	31.14	0.93	34.90	1.02	35.88	1.05	33.75	1.02	29.06	0.95	23.05	0.83	17.14	0.70	12.62	0.58	9.91	0.49	9.50	0.45
	7.02	9.61	0.43	11.25	0.45	14.82	0.52	19.91	0.64	25.82	0.77	31.35	0.88	35.17	0.96	36.18	0.99	34.04	0.96	29.31	0.89	23.24	0.79	17.27	0.67	12.70	0.55	9.96	0.47	9.53	0.43
	7.24	9.63	0.36	11.27	0.38	14.85	0.45	19.98	0.55	25.93	0.67	31.52	0.77	35.39	0.84	36.43	0.87	34.28	0.85	29.52	0.78	23.40	0.69	17.38	0.58	12.77	0.47	10.01	0.39	9.56	0.36
Line #4	7.47	9.55	0.33	11.16	0.36	14.70	0.43	19.76	0.54	25.64	0.65	31.16	0.75	34.98	0.82	36.01	0.85	33.90	0.83	29.21	0.76	23.16	0.66	17.22	0.55	12.67	0.44	9.93	0.36	9.48	0.33
	7.70	9.44	0.33	11.02	0.35	14.50	0.42	19.49	0.52	25.28	0.63	30.71	0.73	34.47	0.79	35.49	0.82	33.42	0.79	28.82	0.73	22.88	0.63	17.03	0.52	12.54	0.42	9.83	0.35	9.38	0.33
	7.94	9.31	0.36	10.85	0.39	14.26	0.46	19.15	0.57	24.83	0.69	30.16	0.79	33.85	0.86	34.85	0.88	32.84	0.86	28.34	0.79	22.52	0.68	16.79	0.57	12.37	0.46	9.70	0.39	9.25	0.36
	8.17	9.15	0.41	10.65	0.43	13.98	0.52	18.76	0.64	24.31	0.77	29.51	0.88	33.11	0.96	34.10	0.99	32.14	0.96	27.75	0.89	22.08	0.77	16.48	0.64	12.16	0.53	9.55	0.44	9.09	0.41
	8.40	8.99	0.44	10.45	0.47	13.70	0.56	18.36	0.69	23.77	0.84	28.84	0.96	32.35	1.05	33.32	1.09	31.42	1.06	27.15	0.97	21.63	0.85	16.17	0.71	11.94	0.58	9.38	0.48	8.93	0.44
	8.68	8.74	0.48	10.14	0.51	13.27	0.61	17.76	0.74	22.97	0.89	27.85	1.03	31.23	1.12	32.16	1.15	30.35	1.12	26.25	1.03	20.94	0.90	15.68	0.75	11.61	0.62	9.13	0.52	8.68	0.48
	8.96	8.58	0.47	9.94	0.50	13.00	0.60	17.40	0.74	22.53	0.89	27.34	1.02	30.68	1.11	31.62	1.14	29.84	1.11	25.82	1.02	20.61	0.89	15.44	0.75	11.43	0.61	8.98	0.51	8.53	0.47
	9.19	8.45	0.06	9.79	0.07	12.79	0.08	17.10	0.09	22.10	0.09	26.79	0.09	30.03	0.09	30.93	0.08	29.20	0.08	25.28	0.08	20.20	0.07	15.16	0.07	11.24	0.06	8.85	0.06	8.40	0.06
	9.43	8.41	0.35	9.74	0.37	12.73	0.45	17.06	0.56	22.11	0.68	26.87	0.80	30.18	0.88	31.12	0.90	29.38	0.88	25.42	0.80	20.29	0.69	15.19	0.56	11.25	0.45	8.83	0.37	8.37	0.35
	9.93	7.95	0.42	9.17	0.45	11.98	0.53	16.07	0.65	20.84	0.78	25.35	0.90	28.52	0.98	29.43	1.00	27.81	0.98	24.08	0.90	19.23	0.78	14.41	0.65	10.67	0.54	8.37	0.45	7.91	0.42
	10.43	7.40	0.40	8.53	0.43	11.12	0.52	14.91	0.65	19.34	0.80	23.54	0.92	26.49	1.01	27.36	1.04	25.87	1.01	22.42	0.92	17.92	0.80	13.45	0.66	9.97	0.53	7.82	0.43	7.37	0.40
	10.94	6.75	0.48	7.75	0.52	10.09	0.62	13.51	0.77	17.52	0.94	21.31	1.09	23.99	1.19	24.79	1.22	23.46	1.19	20.36	1.09	16.31	0.95	12.26	0.79	9.11	0.63	7.15	0.52	6.72	0.48
	11.44	5.95	0.54	6.81	0.58	8.83	0.70	11.80	0.87	15.27	1.05	18.57	1.21	20.89	1.32	21.59	1.36	20.46	1.33	17.79	1.22	14.29	1.06	10.78	0.88	8.03	0.71	6.31	0.59	5.93	0.54
	11.94	5.19	0.46	5.92	0.50	7.69	0.60	10.30	0.76	13.40	0.93	16.36	1.08	18.46	1.18	19.12	1.22	18.14	1.19	15.77	1.08	12.65	0.93	9.53	0.77	7.08	0.61	5.55	0.50	5.18	0.46
	12.45	4.81	0.43	5.48	0.46	7.16	0.54	9.71	0.65	12.78	0.77	15.76	0.88	17.92	0.96	18.64	0.98	17.68	0.96	15.33	0.88	12.23	0.77	9.14	0.65	6.72	0.54	5.20	0.46	4.80	0.43
	12.96	3.60	0.56	4.09	0.60	5.35	0.71	7.28	0.88	9.62	1.06	11.90	1.22	13.57	1.32	14.13	1.36	13.42	1.33	11.63	1.22	9.27	1.07	6.91	0.89	5.08	0.73	3.91	0.61	3.60	0.56
	13.52	1.25	0.75	1.42	0.81	1.85	0.95	2.52	1.16	3.34	1.38	4.14	1.58	4.73	1.71	4.93	1.76	4.68	1.72	4.06	1.59	3.23	1.40	2.41	1.17	1.77	0.97	1.36	0.82	1.25	0.76
	13.63	0.60	0.80	0.68	0.85	0.89	1.00	1.22	1.22	1.61	1.45	2.00	1.66	2.28	1.81	2.38	1.86	2.26	1.81	1.96	1.67	1.56	1.47	1.17	1.24	0.86	1.02	0.66	0.86	0.60	0.80
	0.00	10.88	0.26	13.19	0.29	17.62	0.35	23.60	0.44	30.26	0.54	36.27	0.64	40.20	0.70	40.88	0.72	38.04	0.70	32.38	0.64	25.34	0.55	18.59	0.44	13.55	0.35	10.75	0.29	10.72	0.26
	0.50	10.71	0.34	12.96	0.37	17.31	0.44	23.18	0.54	29.72	0.65	35.64	0.75	39.51	0.82	40.20	0.85	37.43	0.82	31.88	0.75	24.97	0.66	18.33	0.55	13.36	0.44	10.60	0.37	10.55	0.34
	1.00	10.61	0.37	12.81	0.40	17.09	0.47	22.89	0.57	29.38	0.69	35.27	0.79	39.13	0.86	39.85	0.89	37.12	0.87	31.64	0.80	24.79	0.70	18.21	0.58	13.29	0.48	10.53	0.40	10.46	0.37
	1.50	10.53	0.38	12.68	0.40	16.91	0.48	22.65	0.58	29.10	0.70	34.96	0.81	38.84	0.88	39.58	0.90	36.90	0.88	31.47	0.81	24.68	0.71	18.14	0.60	13.24	0.49	10.49	0.41	10.38	0.38
	2.00	10.45	0.38	12.57	0.40	16.74	0.47	22.44	0.58	28.85	0.70	34.70	0.80	38.57	0.88	39.34	0.90	36.71	0.88	31.33	0.81	24.59	0.71	18.09	0.60	13.21	0.49	10.45	0.41	10.32	0.38
	2.50	10.39	0.38	12.46	0.40	16.58	0.47	22.23	0.58	28.61	0.70	34.44	0.80	38.33	0.87	39.13	0.90	36.53	0.88	31.21	0.81	24.51	0.71	18.05	0.60	13.19	0.49	10.43	0.41	10.26	0.38
	3.00	10.33	0.36	12.35	0.39	16.42	0.46	22.03	0.56	28.37	0.68	34.19	0.78	38.08	0.85	38.91	0.88	36.36	0.86	31.08	0.79	24.44	0.69	18.01	0.58	13.17	0.48	10.40	0.40	10.20	0.37
	3.50	10.26	0.36	12.24	0.39	16.26	0.46	21.81	0.56	28.11	0.68	33.91	0.78	37.80	0.86	38.65	0.88	36.15	0.86	30.94	0.79	24.35	0.69	17.97	0.58	13.15	0.48	10.37	0.40	10.14	0.37
	4.00	10.18	0.37	12.12	0.39	16.07	0.46	21.57	0.57	27.82	0.69	33.58	0.80	37.47	0.87	38.34	0.90	35.89	0.87	30.74	0.81	24.22	0.70	17.89	0.59	13.10	0.48	10.33	0.40	10.07	0.37
	4.50	10.09	0.39	11.97	0.41	15.86	0.48	21.29	0.59	27.47	0.71	33.19	0.82	37.07	0.90	37.96	0.92	35.57	0.90	30.49	0.83	24.05	0.73	17.79	0.61	13.03	0.50	10.27	0.42	9.98	0.39
Line #5	5.00	10.04	0.39	11.88	0.41	15.74	0.48	21.13	0.59	27.32	0.71	33.05	0.81	36.94	0.89	37.88	0.92	35.52	0.89	30.47	0.83	24.05	0.73	17.79	0.61	13.04	0.51	10.26	0.43	9.94	0.39
	5.56	9.91	0.18	11.72	0.19	15.51	0.22	20.80	0.26	26.84	0.29	32.42	0.31	36.20	0.32	37.09	0.32	34.78	0.31	29.85	0.29	23.59	0.26	17.49	0.23	12.84	0.20	10.12	0.18	9.81	0.18
	5.85	9.82	0.23	11.62	0.25	15.36	0.30	20.61	0.37	26.62	0.45	32.19	0.51	35.98	0.56	36.88	0.57	34.59	0.56	29.69	0.51	23.46	0.44	17.38	0.37	12.76	0.30	10.05	0.25	9.73	0.23
	6.36	9.59	0.28	11.32	0.30	14.95	0.37	20.05	0.45	25.89	0.55	31.30	0.63	34.99	0.69	35.88	0.71	33.67	0.69	28.93	0.63	22.88	0.55	16.97	0.45	12.47	0.36	9.83	0.30	9.50	0.28
	7.12	8.93	0.34	10.51	0.37	13.84	0.46	18.50	0.58	23.82	0.71	28.74	0.82	32.08	0.90	32.90	0.93	30.90	0.90	26.60	0.82	21.11	0.70	15.72	0.57	11.60	0.45	9.16	0.36	8.85	0.34
	7.96	7.69	0.45	9.02	0.50	11.81	0.61	15.71	0.76	20.14	0.93	24.21	1.07	26.97	1.17	27.64	1.20	25.99	1.16	22.45	1.06	17.89	0.91	13.41	0.75	9.95	0.59	7.90	0.49	7.62	0.45
	8.67	6.76	0.52	7.90	0.56	10.34	0.68	13.78	0.84	17.71	1.02	21.35	1.17	23.84	1.27	24.48	1.30	23.03	1.27	19.89	1.16	15.85	1.01	11.87	0.83	8.81	0.67	6.97	0.56	6.70	0.52
	9.17	6.21	0.45	7.24	0.49	9.49	0.60	12.69	0.74	16.37	0.90	19.80	1.04	22.16	1.14	22.79	1.17	21.46	1.13	18.54	1.04	14.77	0.89	11.05	0.73	8.18	0.59	6.45	0.48	6.16	0.45
	9.68	5.56	0.46	6.47	0.50	8.46	0.62	11.32	0.77	14.63	0.93	17.72	1.08	19.87	1.17	20.46	1.21	19.29	1.17	16.68	1.07	13.30	0.92	9.96	0.76	7.38	0.60	5.80	0.50	5.53	0.46
	10.18	4.85	0.28	5.61	0.32	7.33	0.40	9.80	0.52	12.68	0.65	15.39	0.77	17.28	0.86	17.81	0.89	16.82	0.85	14.56	0.76	11.63	0.63	8.72	0.50	6.47	0.38	5.08	0.31	4.82	0.28
	10.69	3.33	0.38	3.84	0.42	4.98	0.52	6.62	0.68	8.52	0.85	10.29	1.01	11.53	1.11	11.88	1.15	11.23	1.11	9.75	1.00	7.83	0.84	5.91	0.66	4.42	0.51	3.49	0.41	3.31	0.38
	11.24	1.11	0.05	1.28	0.06	1.65	0.07	2.17	0.10	2.78	0.12	3.35	0.15	3.74	0.17	3.85	0.17	3.64	0.16	3.17	0.15	2.55	0.12	1.94	0.09	1.46	0.07	1.16	0.06	1.11	0.05

RAA - Simulation - Raw Data

Table A7.10: RAA4 - Finer Resolution

		t = 0.35		t = 0.4		t = 0.45		t = 0.5		t = 0.55		t = 0.6		t = 0.65		t = 0.7		t = 0.75		t = 0.8		t = 0.85		t = 0.9		t = 0.95		t = 1		t = 1.05	
	Length (cm)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)	P (mmHg)	U (m/s)
	0.00	10.79	0.26	13.10	0.29	17.47	0.35	23.38	0.44	29.88	0.54	35.70	0.63	39.65	0.70	40.39	0.72	37.61	0.70	32.00	0.64	24.88	0.55	18.23	0.44	13.17	0.35	10.66	0.29	10.62	0.26
	0.50	10.62	0.34	12.87	0.37	17.15	0.44	22.95	0.54	29.35	0.65	35.08	0.75	38.97	0.82	39.72	0.84	37.01	0.82	31.50	0.75	24.51	0.65	17.97	0.54	12.99	0.44	10.51	0.37	10.46	0.35
	1.00	10.51	0.38	12.71	0.40	16.93	0.47	22.66	0.58	28.99	0.70	34.68	0.80	38.56	0.87	39.33	0.90	36.67	0.87	31.23	0.80	24.32	0.70	17.84	0.59	12.91	0.48	10.43	0.41	10.35	0.38
	1.50	10.43	0.38	12.59	0.40	16.75	0.48	22.42	0.58	28.72	0.70	34.38	0.81	38.25	0.88	39.04	0.91	36.43	0.88	31.05	0.81	24.21	0.71	17.78	0.60	12.87	0.49	10.39	0.41	10.28	0.38
	2.00	10.36	0.38	12.48	0.40	16.58	0.48	22.21	0.58	28.47	0.70	34.12	0.81	38.00	0.88	38.82	0.91	36.25	0.89	30.92	0.82	24.14	0.72	17.74	0.60	12.85	0.49	10.35	0.42	10.22	0.38
	2.50	10.30	0.38	12.37	0.40	16.42	0.47	22.01	0.57	28.23	0.69	33.87	0.80	37.75	0.87	38.60	0.90	36.07	0.88	30.79	0.81	24.06	0.71	17.70	0.59	12.83	0.49	10.33	0.41	10.16	0.38
	3.00	10.24	0.37	12.26	0.39	16.27	0.46	21.80	0.57	28.00	0.68	33.62	0.79	37.50	0.86	38.38	0.89	35.90	0.87	30.67	0.80	24.00	0.70	17.67	0.59	12.82	0.48	10.30	0.40	10.11	0.37
	3.50	10.17	0.37	12.15	0.39	16.10	0.46	21.58	0.57	27.74	0.68	33.34	0.78	37.22	0.86	38.12	0.88	35.69	0.86	30.52	0.79	23.91	0.70	17.62	0.58	12.79	0.48	10.27	0.40	10.04	0.37
	4.00	10.09	0.37	12.02	0.39	15.91	0.46	21.33	0.57	27.44	0.69	33.00	0.79	36.87	0.86	37.79	0.89	35.41	0.87	30.30	0.80	23.77	0.70	17.54	0.59	12.75	0.48	10.22	0.40	9.97	0.37
	4.50	10.00	0.38	11.88	0.40	15.71	0.48	21.06	0.58	27.10	0.71	32.62	0.81	36.46	0.88	37.40	0.91	35.07	0.89	30.05	0.82	23.60	0.72	17.44	0.60	12.69	0.49	10.16	0.41	9.88	0.38
	5.00	9.95	0.39	11.79	0.41	15.58	0.48	20.90	0.58	26.94	0.70	32.47	0.81	36.33	0.88	37.31	0.91	35.02	0.89	30.02	0.82	23.60	0.72	17.45	0.61	12.69	0.50	10.15	0.42	9.84	0.39
	5.50	9.90	0.38	11.70	0.40	15.44	0.47	20.73	0.57	26.75	0.69	32.27	0.80	36.14	0.87	37.14	0.90	34.89	0.88	29.94	0.81	23.57	0.71	17.45	0.60	12.70	0.49	10.14	0.42	9.80	0.38
	6.00	9.74	0.40	11.48	0.43	15.12	0.50	20.28	0.61	26.15	0.74	31.54	0.85	35.32	0.93	36.31	0.96	34.15	0.94	29.34	0.86	23.16	0.76	17.18	0.63	12.53	0.52	10.00	0.44	9.64	0.40
	6.51	9.51	0.44	11.18	0.47	14.69	0.56	19.68	0.68	25.35	0.82	30.56	0.94	34.23	1.03	35.20	1.06	33.13	1.03	28.51	0.95	22.55	0.83	16.78	0.70	12.26	0.57	9.80	0.48	9.43	0.45
	6.82	9.48	0.45	11.12	0.48	14.61	0.56	19.59	0.68	25.28	0.82	30.52	0.94	34.21	1.02	35.22	1.05	33.16	1.03	28.54	0.95	22.57	0.84	16.78	0.71	12.27	0.58	9.79	0.49	9.39	0.45
	7.03	9.47	0.44	11.10	0.46	14.60	0.54	19.58	0.66	25.30	0.79	30.58	0.91	34.30	0.99	35.33	1.02	33.28	1.00	28.63	0.93	22.64	0.82	16.83	0.69	12.29	0.57	9.80	0.48	9.39	0.44
	7.23	9.46	0.40	11.08	0.42	14.57	0.50	19.56	0.61	25.29	0.74	30.60	0.86	34.36	0.93	35.41	0.97	33.36	0.95	28.71	0.88	22.70	0.77	16.87	0.65	12.32	0.53	9.80	0.44	9.38	0.40
Line #1	7.45	9.34	0.36	10.93	0.39	14.35	0.46	19.25	0.58	24.88	0.70	30.09	0.81	33.77	0.89	34.80	0.92	32.80	0.90	28.25	0.82	22.36	0.71	16.64	0.59	12.16	0.47	9.69	0.39	9.27	0.36
	7.65	9.25	0.40	10.80	0.43	14.18	0.51	19.02	0.62	24.59	0.75	29.74	0.86	33.38	0.94	34.41	0.97	32.44	0.95	27.95	0.87	22.14	0.76	16.49	0.63	12.06	0.52	9.60	0.43	9.17	0.40
	7.85	9.15	0.41	10.68	0.44	14.00	0.52	18.78	0.64	24.29	0.76	29.38	0.87	32.99	0.95	34.01	0.98	32.08	0.96	27.65	0.88	21.92	0.77	16.33	0.65	11.95	0.53	9.51	0.45	9.08	0.41
	8.05	9.05	0.44	10.55	0.47	13.83	0.55	18.56	0.67	24.00	0.81	29.04	0.93	32.62	1.01	33.65	1.04	31.75	1.02	27.38	0.94	21.71	0.82	16.18	0.69	11.84	0.57	9.42	0.48	8.98	0.44
	8.26	8.95	0.45	10.42	0.47	13.66	0.56	18.32	0.68	23.70	0.82	28.68	0.94	32.23	1.02	33.25	1.06	31.38	1.03	27.07	0.95	21.48	0.84	16.02	0.71	11.73	0.58	9.33	0.49	8.88	0.45
	8.46	8.85	0.46	10.29	0.49	13.48	0.57	18.08	0.70	23.39	0.84	28.33	0.97	31.83	1.05	32.86	1.09	31.02	1.06	26.77	0.98	21.26	0.86	15.86	0.73	11.61	0.60	9.23	0.50	8.78	0.46
	8.66	8.73	0.46	10.15	0.49	13.28	0.58	17.82	0.71	23.06	0.85	27.94	0.98	31.40	1.07	32.42	1.10	30.63	1.08	26.44	0.99	21.00	0.87	15.68	0.73	11.49	0.60	9.13	0.51	8.67	0.47
	8.87	8.61	0.47	9.99	0.50	13.07	0.59	17.54	0.72	22.71	0.87	27.51	1.00	30.93	1.09	31.95	1.12	30.19	1.10	26.07	1.01	20.73	0.89	15.48	0.75	11.35	0.61	9.02	0.52	8.56	0.47
	9.07	8.49	0.47	9.83	0.50	12.86	0.60	17.24	0.73	22.33	0.88	27.06	1.01	30.43	1.10	31.44	1.13	29.72	1.11	25.68	1.02	20.43	0.90	15.27	0.75	11.20	0.62	8.89	0.52	8.43	0.48
	9.60	8.10	0.51	9.36	0.55	12.21	0.64	16.36	0.79	21.19	0.94	25.68	1.08	28.90	1.18	29.88	1.21	28.27	1.18	24.46	1.09	19.50	0.96	14.61	0.81	10.73	0.66	8.52	0.56	8.05	0.52
	9.80	7.96	0.53	9.18	0.56	11.97	0.66	16.04	0.80	20.78	0.96	25.20	1.10	28.36	1.20	29.34	1.24	27.77	1.21	24.04	1.12	19.18	0.98	14.38	0.83	10.57	0.68	8.39	0.57	7.91	0.53
	10.49	7.42	0.39	8.54	0.42	11.12	0.48	14.90	0.58	19.30	0.67	23.42	0.75	26.37	0.81	27.29	0.83	25.84	0.81	22.38	0.75	17.87	0.67	13.41	0.57	9.87	0.48	7.83	0.42	7.38	0.39
	11.22	6.87	0.45	7.88	0.48	10.25	0.57	13.74	0.70	17.84	0.83	21.68	0.94	24.45	1.02	25.33	1.05	24.01	1.03	20.81	0.95	16.63	0.84	12.48	0.71	9.19	0.58	7.28	0.49	6.84	0.46
	12.24	6.58	0.38	7.52	0.40	9.76	0.47	13.08	0.60	16.99	0.74	20.66	0.86	23.31	0.95	24.18	0.98	22.95	0.96	19.92	0.89	15.95	0.78	12.00	0.65	8.85	0.52	7.00	0.43	6.55	0.38
	12.75	5.47	0.55	6.21	0.58	8.00	0.69	10.65	0.85	13.77	1.03	16.68	1.18	18.78	1.28	19.48	1.32	18.52	1.29	16.14	1.19	13.01	1.04	9.86	0.87	7.33	0.71	5.83	0.59	5.45	0.55
	13.15	4.74	0.61	5.36	0.65	6.89	0.77	9.17	0.95	11.85	1.14	14.36	1.30	16.18	1.42	16.79	1.46	15.98	1.43	13.94	1.32	11.25	1.16	8.55	0.98	6.37	0.80	5.06	0.67	4.73	0.61
	13.61	4.32	0.54	4.88	0.57	6.32	0.67	8.52	0.82	11.17	0.97	13.70	1.10	15.56	1.18	16.21	1.22	15.44	1.19	13.43	1.10	10.77	0.98	8.10	0.83	5.95	0.69	4.67	0.58	4.31	0.54
	14.19	2.11	0.73	2.38	0.78	3.08	0.91	4.16	1.10	5.46	1.30	6.71	1.48	7.63	1.59	7.96	1.64	7.58	1.60	6.60	1.48	5.29	1.31	3.98	1.11	2.93	0.92	2.29	0.79	2.11	0.73
	0.00	10.79	0.26	13.10	0.29	17.47	0.35	23.38	0.44	29.88	0.54	35.70	0.63	39.65	0.70	40.39	0.72	37.61	0.70	32.00	0.64	24.88	0.55	18.23	0.44	13.17	0.35	10.66	0.29	10.62	0.26
	0.50	10.62	0.34	12.87	0.37	17.15	0.44	22.95	0.54	29.35	0.65	35.08	0.75	38.97	0.82	39.72	0.84	37.01	0.82	31.50	0.75	24.51	0.65	17.97	0.54	12.99	0.44	10.51	0.37	10.46	0.35
	1.00	10.51	0.38	12.71	0.40	16.93	0.47	22.66	0.58	28.99	0.70	34.68	0.80	38.56	0.87	39.33	0.90	36.67	0.87	31.23	0.80	24.32	0.70	17.84	0.59	12.91	0.48	10.43	0.41	10.35	0.38
	1.50	10.43	0.38	12.59	0.40	16.75	0.48	22.42	0.58	28.72	0.70	34.38	0.81	38.25	0.88	39.04	0.91	36.43	0.88	31.05	0.81	24.21	0.71	17.78	0.60	12.87	0.49	10.39	0.41	10.28	0.38
	2.00	10.36	0.38	12.48	0.40	16.58	0.48	22.21	0.58	28.47	0.70	34.12	0.81	38.00	0.88	38.82	0.91	36.25	0.89	30.92	0.82	24.14	0.72	17.74	0.60	12.85	0.49	10.35	0.42	10.22	0.38
	2.50	10.30	0.38	12.37	0.40	16.42	0.47	22.01	0.57	28.23	0.69	33.87	0.80	37.75	0.87	38.60	0.90	36.07	0.88	30.79	0.81	24.06	0.71	17.70	0.59	12.83	0.49	10.33	0.41	10.16	0.38
	3.00	10.24	0.37	12.26	0.39	16.27	0.46	21.80	0.57	28.00	0.68	33.62	0.79	37.50	0.86	38.38	0.89	35.90	0.87	30.67	0.80	24.00	0.70	17.67	0.59	12.82	0.48	10.30	0.40	10.11	0.37
	3.50	10.17	0.37	12.15	0.39	16.10	0.46	21.58	0.57	27.74	0.68	33.34	0.78	37.22	0.86	38.12	0.88	35.69	0.86	30.52	0.79	23.91	0.70	17.62	0.58	12.79	0.48	10.27	0.40	10.04	0.37
	4.00	10.09	0.37	12.02	0.39	15.91	0.46	21.33	0.57	27.44	0.69	33.00	0.79	36.87	0.86	37.79	0.89	35.41	0.87	30.30	0.80	23.77	0.70	17.54	0.59	12.75	0.48	10.22	0.40	9.97	0.37
	4.50	10.00	0.38	11.88	0.40	15.71	0.48	21.06	0.58	27.10	0.71	32.62	0.81	36.46	0.88	37.40	0.91	35.07	0.89	30.05	0.82	23.60	0.72	17.44	0.60	12.69	0.49	10.16	0.41	9.88	0.38
	5.00	9.95	0.39	11.79	0.41	15.58	0.48	20.90	0.58	26.94	0.70	32.47	0.81	36.33	0.88	37.31	0.91	35.02	0.89	30.02	0.82	23.60	0.72	17.45	0.61	12.69	0.50	10.15	0.42	9.84	0.39
	5.50	9.90	0.38	11.70	0.40	15.44	0.47	20.73	0.57	26.75	0.69	32.27	0.80	36.14	0.87	37.14	0.90	34.89	0.88	29.94	0.81	23.57	0.71	17.45	0.60	12.70	0.49	10.14	0.42	9.80	0.38
	6.00	9.74	0.40	11.48	0.43	15.12	0.50	20.28	0.61	26.15	0.74	31.54	0.85	35.32	0.93	36.31	0.96	34.15	0.94	29.34	0.86	23.16	0.76	17.18	0.63	12.53	0.52	10.00	0.44	9.64	0.40
	6.51	9.51	0.44	11.18	0.47	14.69	0.56	19.68	0.68	25.35	0.82	30.56	0.94	34.23	1.03	35.20	1.06	33.13	1.03	28.51	0.95	22.55	0.83	16.78	0.70	12.26	0.57	9.80	0.48	9.43	0.45
	6.82	9.48	0.45	11.12	0.48	14.61	0.56	19.59	0.68	25.28	0.82	30.52	0.94	34.21	1.02	35.22	1.05	33.16	1.03	28.54	0.95	22.57	0.84	16.78	0.71	12.27	0.58	9.79	0.49	9.39	0.45
	7.03	9.47	0.44	11.10	0.46	14.60	0.54	19.58	0.66	25.30	0.79	30.58	0.91	34.30	0.99	35.33	1.02	33.28	1.00	28.63	0.93	22.64	0.82	16.83	0.69	12.29	0.57	9.80	0.48	9.39	0.44
	7.23	9.46	0.40	11.08	0.42	14.57	0.50	19.56	0.61	25.29	0.74	30.60	0.86	34.36	0.93	35.41	0.97	33.36	0.95	28.71	0.88	22.70	0.77	16.87	0.65	12.32	0.53	9.80	0.44	9.38	0.40
Line #2	7.45	9.34	0.36	10.93	0.39	14.35	0.46	19.25	0.58	24.88	0.70	30.09	0.81	33.77	0.89	34.80	0.92	32.80	0.90	28.25	0.82	22.36	0.71	16.64	0.59	12.16	0.47	9.69	0.39	9.27	0.36
	7.65	9.25	0.40	10.80	0.43	14.18	0.51	19.02	0.62	24.59	0.75	29.74	0.86	33.38	0.94	34.41	0.97	32.44	0.95	27.95	0.87	22.14	0.76	16.49	0.63	12.06	0.52	9.60	0.43	9.17	0.40
	7.85	9.15	0.41	10.68	0.44	14.00	0.52	18.78	0.64	24.29	0.76	29.38	0.87	32.99	0.95	34.01	0.98	32.08	0.96	27.65	0.88	21.92	0.77	16.33	0.65	11.95	0.53	9.51	0.45	9.08	0.41
	8.05	9.05	0.44	10.55	0.47	13.83	0.55	18.56	0.67	24.00	0.81	29.04	0.93	32.62	1.01	33.65	1.04	31.75	1.02	27.38	0.94	21.71	0.82	16.18	0.69	11.84	0.57	9.42	0.48	8.98	0.44
	8.26	8.95	0.45	10.42	0.47	13.66	0.56	18.32	0.68	23.70	0.82	28.68	0.94	32.23	1.02	33.25	1.06	31.38	1.03	27.07	0.95	21.48	0.84	16.02	0.71	11.73	0.58	9.33	0.49	8.88	0.45
	8.46	8.85	0.46	10.29	0.49	13.48	0.57	18.08	0.70	23.39	0.84	28.33	0.97	31.83	1.05	32.86	1.09	31.02	1.06	26.77	0.98	21.26	0.86	15.86	0.73	11.61	0.60	9.23	0.50	8.78	0.46
	8.66	8.73	0.46	10.15	0.49	13.28	0.58	17.82	0.71	23.06	0.85	27.94	0.98	31.40	1.07	32.42	1.10	30.63	1.08	26.44	0.99	21.00	0.87	15.68	0.73	11.49	0.60	9.13	0.51	8.67	0.47
	8.87	8.61	0.47	9.99	0.50	13.07	0.59	17.54	0.72	22.71	0.87	27.51	1.00	30.93	1.09	31.95	1.12	30.19	1.10	26.07	1.01	20.73	0.89	15.48	0.75	11.35	0.61	9.02	0.52	8.56	0.47
	9.07	8.49	0.47	9.83	0.50	12.86	0.60	17.24	0.73	22.33	0.88	27.06	1.01	30.43	1.10	31.44	1.13	29.72	1.11	25.68	1.02	20.43	0.90	15.27	0.75	11.20	0.62	8.89	0.52	8.43	0.48
	9.60	8.10	0.51	9.36	0.55	12.21	0.64	16.36	0.79	21.19	0.94	25.68	1.08	28.90	1.18	29.88	1.21	28.27	1.18	24.46	1.09	19.50	0.96	14.61	0.81	10.73	0.66	8.52	0.56	8.05	0.52
	9.80	7.96	0.53	9.18	0.56	11.97	0.66	16.04	0.80	20.78	0.96	25.20	1.10	28.36	1.20	29.34	1.24	27.77	1.21	24.04	1.12	19.18	0.98	14.38	0.83	10.57	0.68	8.39	0.57	7.91	0.53
	10.12	8.11	0.39	9.34	0.42	12.22	0.50	16.48	0.62	21.49	0.75	26.21	0.86	29.62	0.94	30.71	0.97	29.09	0.95	25.16	0.88	20.02	0.77	14.94	0.65	10.92	0.53	8.61	0.44	8.08	0.40
	10.65	7.99	0.35	9.17	0.37	12.00	0.44	16.21	0.55	21.19	0.66	25.90	0.76	29.32	0.83	30.44	0.86	28.86	0.84	24.97	0.77	19.89	0.68	14.85	0.56	10.85	0.46	8.52	0.38	7.96	0.35
	11.19	7.61	0.40	8.70	0.42	11.37	0.50	15.35	0.62	20.09	0.75	24.57	0.86	27.83	0.94	28.92	0.97	27.44	0.94	23.77	0.87	18.96	0.76	14.18	0.64	10.37	0.52	8.14	0.44	7.58	0.40
	11.76	6.99	0.47	7.97	0.50	10.38	0.59	14.00	0.73	18.31	0.88	22.39	1.01	25.35	1.10	26.36	1.14	25.04	1.11	21.73	1.02	17.38	0.90	13.03	0.75	9.55	0.61	7.50	0.51	6.97	0.47
	12.35	6.02	0.57	6.83	0.61	8.86	0.72	11.90	0.89	15.51	1.07	18.92	1.23	21.40	1.34	22.25	1.38	21.17	1.35	18.43	1.24	14.80	1.09	11.16	0.91	8.23	0.74	6.48	0.62	6.01	0.57
	12.96	5.39	0.49	6.09	0.52	7.93	0.63	10.75	0.78	14.17	0.94	17.45	1.08	19.86	1.17	20.72	1.21	19.74	1.18	17.14	1.09	13.71	0.96	10.27	0.80	7.51	0.65	5.86	0.54	5.38	0.49
	13.66	2.82	0.74	3.17	0.79	4.10	0.93	5.50	1.14	7.19	1.37	8.78	1.56	9.95	1.70	10.37	1.75	9.90	1.71	8.64	1.58	6.97	1.39	5.28	1.17	3.90	0.96	3.06	0.80	2.82	0.74
	14.16	0.08	0.85	0.09	0.91	0.12	1.08	0.16	1.32	0.21	1.58	0.25	1.81	0.28	1.96	0.29	2.02	0.28	1.98	0.25	1.83	0.21	1.61	0.16	1.35	0.12	1.10	0.09	0.92	0.08	0.85
	0.00	10.79	0.26	13.10	0.29	17.47	0.35	23.38	0.44	29.88	0.54	35.70	0.63	39.65	0.70	40.39	0.72	37.61	0.70	32.00	0.64	24.88	0.55	18.23	0.44	13.17	0.35	10.66	0.29	10.62	0.26
	0.50	10.62	0.34	12.87	0.37	17.15	0.44	22.95	0.54	29.35	0.65	35.08	0.75	38.97	0.82	39.72	0.84	37.01	0.82	31.50	0.75	24.51	0.65	17.97	0.54	12.99	0.44	10.51	0.37	10.46	0.35
	1.00	10.51	0.38	12.71	0.40	16.93	0.47	22.66	0.58	28.99	0.70	34.68	0.80	38.56	0.87	39.33	0.90	36.67	0.87	31.23	0.80	24.32	0.70	17.84	0.59	12.91	0.48	10.43	0.41	10.35	0.38
	1.50	10.43	0.38	12.59	0.40	16.75	0.48	22.42	0.58	28.72	0.70	34.38	0.81	38.25	0.88	39.04	0.91	36.43	0.88	31.05	0.81	24.21	0.71	17.78	0.60	12.87	0.49	10.39	0.41	10.28	0.38
	2.00	10.36	0.38	12.48	0.40	16.58	0.48	22.21	0.58	28.47	0.70	34.12	0.81	38.00	0.88	38.82	0.91	36.25	0.89	30.92	0.82	24.14	0.72	17.74	0.60	12.85	0.49	10.35	0.42	10.22	0.38
	2.50	10.30	0.38	12.37	0.40	16.42	0.47	22.01	0.57	28.23	0.69	33.87	0.80	37.75	0.87	38.60	0.90	36.07	0.88	30.79	0.81	24.06	0.71	17.70	0.59	12.83	0.49	10.33	0.41	10.16	0.38
	3.00	10.24	0.37	12.26	0.39	16.27	0.46	21.80	0.57	28.00	0.68	33.62	0.79	37.50	0.86	38.38	0.89	35.90	0.87	30.67	0.80	24.00	0.70	17.67	0.59	12.82	0.48	10.30	0.40	10.11	0.37
	3.50	10.17	0.37	12.15	0.39	16.10	0.46	21.58	0.57	27.74	0.68	33.34	0.78	37.22	0.86	38.12	0.88	35.69	0.86	30.52	0.79	23.91	0.70	17.62	0.58	12.79	0.48	10.27	0.40	10.04	0.37

Line #3	4.00	10.09	0.37	12.02	0.39	15.91	0.46	21.33	0.57	27.44	0.69	33.00	0.79	36.87	0.86	37.79	0.89	35.41	0.87	30.30	0.80	23.77	0.70	17.54	0.59	12.75	0.48	10.22	0.40	9.97	0.37
	4.50	10.00	0.38	11.88	0.40	15.71	0.48	21.06	0.58	27.10	0.71	32.62	0.81	36.46	0.88	37.40	0.91	35.07	0.89	30.05	0.82	23.60	0.72	17.44	0.60	12.69	0.49	10.16	0.41	9.88	0.38
	5.00	9.95	0.39	11.79	0.41	15.58	0.48	20.90	0.58	26.94	0.70	32.47	0.81	36.33	0.88	37.31	0.91	35.02	0.89	30.02	0.82	23.60	0.72	17.45	0.61	12.69	0.50	10.15	0.42	9.84	0.39
	5.50	9.90	0.38	11.70	0.40	15.44	0.47	20.73	0.57	26.75	0.69	32.27	0.80	36.14	0.87	37.14	0.90	34.89	0.88	29.94	0.81	23.57	0.71	17.45	0.60	12.70	0.49	10.14	0.42	9.80	0.38
	6.00	9.74	0.40	11.48	0.43	15.12	0.50	20.28	0.61	26.15	0.74	31.54	0.85	35.32	0.93	36.31	0.96	34.15	0.94	29.34	0.86	23.16	0.76	17.18	0.63	12.53	0.52	10.00	0.44	9.64	0.40
	6.51	9.51	0.44	11.18	0.47	14.69	0.56	19.68	0.68	25.35	0.82	30.56	0.94	34.23	1.03	35.20	1.06	33.13	1.03	28.51	0.95	22.55	0.83	16.78	0.70	12.26	0.57	9.80	0.48	9.43	0.45
	6.82	9.48	0.45	11.12	0.48	14.61	0.56	19.59	0.68	25.28	0.82	30.52	0.94	34.21	1.02	35.22	1.05	33.16	1.03	28.54	0.95	22.57	0.84	16.78	0.71	12.27	0.58	9.79	0.49	9.39	0.45
	7.02	9.50	0.43	11.14	0.45	14.65	0.53	19.66	0.64	25.41	0.77	30.72	0.88	34.48	0.96	35.52	0.99	33.45	0.97	28.78	0.90	22.75	0.80	16.91	0.67	12.35	0.56	9.83	0.47	9.42	0.43
	7.24	9.53	0.35	11.16	0.38	14.68	0.45	19.73	0.56	25.53	0.67	30.90	0.77	34.70	0.84	35.77	0.87	33.70	0.85	29.00	0.79	22.92	0.69	17.02	0.58	12.42	0.47	9.88	0.39	9.45	0.36
	7.47	9.45	0.33	11.05	0.36	14.53	0.43	19.51	0.53	25.24	0.65	30.54	0.75	34.30	0.82	35.35	0.85	33.31	0.83	28.68	0.76	22.68	0.66	16.87	0.54	12.32	0.44	9.80	0.36	9.37	0.33
	7.70	9.34	0.32	10.92	0.35	14.34	0.42	19.24	0.51	24.89	0.62	30.11	0.71	33.80	0.78	34.85	0.80	32.85	0.78	28.30	0.71	22.41	0.61	16.68	0.50	12.20	0.41	9.71	0.34	9.27	0.32
	7.94	9.21	0.36	10.75	0.38	14.10	0.46	18.92	0.56	24.45	0.68	29.57	0.77	33.20	0.84	34.23	0.87	32.29	0.84	27.84	0.77	22.07	0.67	16.45	0.56	12.04	0.46	9.58	0.38	9.14	0.36
	8.17	9.06	0.40	10.56	0.43	13.83	0.51	18.53	0.63	23.94	0.76	28.94	0.87	32.48	0.94	33.49	0.97	31.60	0.95	27.27	0.87	21.64	0.76	16.15	0.63	11.84	0.52	9.43	0.43	8.99	0.40
	8.40	8.89	0.44	10.35	0.47	13.54	0.56	18.12	0.69	23.39	0.83	28.26	0.95	31.71	1.04	32.70	1.07	30.87	1.05	26.65	0.96	21.18	0.84	15.84	0.70	11.62	0.57	9.26	0.48	8.83	0.44
	8.68	8.64	0.47	10.04	0.51	13.12	0.60	17.53	0.74	22.61	0.89	27.29	1.02	30.60	1.11	31.56	1.14	29.81	1.11	25.77	1.03	20.51	0.90	15.37	0.75	11.30	0.61	9.01	0.51	8.58	0.48
	8.96	8.48	0.46	9.84	0.50	12.85	0.59	17.18	0.73	22.17	0.88	26.78	1.00	30.05	1.09	31.01	1.12	29.30	1.10	25.34	1.01	20.18	0.88	15.12	0.74	11.13	0.60	8.87	0.50	8.43	0.47
	9.25	8.57	0.30	9.93	0.33	12.99	0.40	17.42	0.51	22.55	0.62	27.32	0.72	30.72	0.79	31.73	0.81	29.98	0.79	25.90	0.72	20.60	0.62	15.40	0.50	11.31	0.40	8.98	0.33	8.52	0.30
	9.57	8.51	0.25	9.85	0.27	12.88	0.33	17.29	0.40	22.41	0.47	27.16	0.54	30.55	0.58	31.57	0.60	29.85	0.58	25.80	0.53	20.53	0.45	15.35	0.37	11.26	0.31	8.94	0.26	8.46	0.25
	10.39	8.09	0.35	9.33	0.38	12.19	0.45	16.37	0.56	21.25	0.69	25.80	0.79	29.07	0.86	30.08	0.89	28.48	0.87	24.64	0.80	19.64	0.70	14.70	0.58	10.79	0.47	8.54	0.39	8.05	0.36
	11.25	7.32	0.44	8.40	0.47	10.94	0.56	14.66	0.70	19.02	0.84	23.09	0.97	26.02	1.05	26.95	1.09	25.55	1.06	22.16	0.97	17.72	0.85	13.31	0.71	9.81	0.57	7.76	0.47	7.29	0.44
	11.92	6.17	0.58	7.04	0.62	9.10	0.74	12.13	0.91	15.65	1.10	18.93	1.25	21.27	1.36	22.03	1.40	20.92	1.37	18.22	1.26	14.66	1.10	11.10	0.92	8.24	0.75	6.55	0.63	6.15	0.58
	12.50	5.50	0.45	6.25	0.48	8.10	0.58	10.85	0.71	14.09	0.85	17.13	0.97	19.33	1.06	20.06	1.09	19.07	1.06	16.59	0.97	13.33	0.84	10.06	0.70	7.44	0.57	5.88	0.48	5.48	0.45
	13.04	2.93	0.61	3.31	0.66	4.18	0.81	5.42	1.02	6.80	1.24	8.04	1.43	8.91	1.57	9.17	1.62	8.75	1.57	7.72	1.44	6.36	1.24	4.97	1.01	3.80	0.81	3.10	0.66	2.92	0.61
	13.56	0.27	0.70	0.30	0.75	0.34	0.91	0.38	1.14	0.38	1.38	0.36	1.58	0.33	1.72	0.30	1.78	0.30	1.73	0.30	1.58	0.31	1.38	0.31	1.14	0.29	0.91	0.27	0.75	0.27	0.70
	13.66	0.02	0.53	0.02	0.58	0.02	0.70	0.02	0.89	0.01	1.09	0.00	1.27	-0.01	1.39	-0.02	1.43	-0.01	1.39	-0.01	1.27	0.00	1.09	0.01	0.89	0.01	0.70	0.01	0.57	0.02	0.53
Line #4	0.00	10.79	0.26	13.10	0.29	17.47	0.35	23.38	0.44	29.88	0.54	35.70	0.63	39.65	0.70	40.39	0.72	37.61	0.70	32.00	0.64	24.88	0.55	18.23	0.44	13.17	0.35	10.66	0.29	10.62	0.26
	0.50	10.62	0.34	12.87	0.37	17.15	0.44	22.95	0.54	29.35	0.65	35.08	0.75	38.97	0.82	39.72	0.84	37.01	0.82	31.50	0.75	24.51	0.65	17.97	0.54	12.99	0.44	10.51	0.37	10.46	0.35
	1.00	10.51	0.38	12.71	0.40	16.93	0.47	22.66	0.58	28.99	0.70	34.68	0.80	38.56	0.87	39.33	0.90	36.67	0.87	31.23	0.80	24.32	0.70	17.84	0.59	12.91	0.48	10.43	0.41	10.35	0.38
	1.50	10.43	0.38	12.59	0.40	16.75	0.48	22.42	0.58	28.72	0.70	34.38	0.81	38.25	0.88	39.04	0.91	36.43	0.88	31.05	0.81	24.21	0.71	17.78	0.60	12.87	0.49	10.39	0.41	10.28	0.38
	2.00	10.36	0.38	12.48	0.40	16.58	0.48	22.21	0.58	28.47	0.70	34.12	0.81	38.00	0.88	38.82	0.91	36.25	0.89	30.92	0.82	24.14	0.72	17.74	0.60	12.85	0.49	10.35	0.42	10.22	0.38
	2.50	10.30	0.38	12.37	0.40	16.42	0.47	22.01	0.57	28.23	0.69	33.87	0.80	37.75	0.87	38.60	0.90	36.07	0.88	30.79	0.81	24.06	0.71	17.70	0.59	12.83	0.49	10.33	0.41	10.16	0.38
	3.00	10.24	0.37	12.26	0.39	16.27	0.46	21.80	0.57	28.00	0.68	33.62	0.79	37.50	0.86	38.38	0.89	35.90	0.87	30.67	0.80	24.00	0.70	17.67	0.59	12.82	0.48	10.30	0.40	10.11	0.37
	3.50	10.17	0.37	12.15	0.39	16.10	0.46	21.58	0.57	27.74	0.68	33.34	0.78	37.22	0.86	38.12	0.88	35.69	0.86	30.52	0.79	23.91	0.70	17.62	0.58	12.79	0.48	10.27	0.40	10.04	0.37
	4.00	10.09	0.37	12.02	0.39	15.91	0.46	21.33	0.57	27.44	0.69	33.00	0.79	36.87	0.86	37.79	0.89	35.41	0.87	30.30	0.80	23.77	0.70	17.54	0.59	12.75	0.48	10.22	0.40	9.97	0.37
	4.50	10.00	0.38	11.88	0.40	15.71	0.48	21.06	0.58	27.10	0.71	32.62	0.81	36.46	0.88	37.40	0.91	35.07	0.89	30.05	0.82	23.60	0.72	17.44	0.60	12.69	0.49	10.16	0.41	9.88	0.38
	5.00	9.95	0.39	11.79	0.41	15.58	0.48	20.90	0.58	26.94	0.70	32.47	0.81	36.33	0.88	37.31	0.91	35.02	0.89	30.02	0.82	23.60	0.72	17.45	0.61	12.69	0.50	10.15	0.42	9.84	0.39
	5.50	9.90	0.38	11.70	0.40	15.44	0.47	20.73	0.57	26.75	0.69	32.27	0.80	36.14	0.87	37.14	0.90	34.89	0.88	29.94	0.81	23.57	0.71	17.45	0.60	12.70	0.49	10.14	0.42	9.80	0.38
	6.00	9.74	0.40	11.48	0.43	15.12	0.50	20.28	0.61	26.15	0.74	31.54	0.85	35.32	0.93	36.31	0.96	34.15	0.94	29.34	0.86	23.16	0.76	17.18	0.63	12.53	0.52	10.00	0.44	9.64	0.40
	6.51	9.51	0.44	11.18	0.47	14.69	0.56	19.68	0.68	25.35	0.82	30.56	0.94	34.23	1.03	35.20	1.06	33.13	1.03	28.51	0.95	22.55	0.83	16.78	0.70	12.26	0.57	9.80	0.48	9.43	0.45
	6.82	9.48	0.45	11.12	0.48	14.61	0.56	19.59	0.68	25.28	0.82	30.52	0.94	34.21	1.02	35.22	1.05	33.16	1.03	28.54	0.95	22.57	0.84	16.78	0.71	12.27	0.58	9.79	0.49	9.39	0.45
	7.02	9.50	0.43	11.14	0.45	14.65	0.53	19.66	0.64	25.41	0.77	30.72	0.88	34.48	0.96	35.52	0.99	33.45	0.97	28.78	0.90	22.75	0.80	16.91	0.67	12.35	0.56	9.83	0.47	9.42	0.43
	7.24	9.53	0.35	11.16	0.38	14.68	0.45	19.73	0.56	25.53	0.67	30.90	0.77	34.70	0.84	35.77	0.87	33.70	0.85	29.00	0.79	22.92	0.69	17.02	0.58	12.42	0.47	9.88	0.39	9.45	0.36
	7.47	9.45	0.33	11.05	0.36	14.53	0.43	19.51	0.53	25.24	0.65	30.54	0.75	34.30	0.82	35.35	0.85	33.31	0.83	28.68	0.76	22.68	0.66	16.87	0.54	12.32	0.44	9.80	0.36	9.37	0.33
	7.70	9.34	0.32	10.92	0.35	14.34	0.42	19.24	0.51	24.89	0.62	30.11	0.71	33.80	0.78	34.85	0.80	32.85	0.78	28.30	0.71	22.41	0.61	16.68	0.50	12.20	0.41	9.71	0.34	9.27	0.32
	7.94	9.21	0.36	10.75	0.38	14.10	0.46	18.92	0.56	24.45	0.68	29.57	0.77	33.20	0.84	34.23	0.87	32.29	0.84	27.84	0.77	22.07	0.67	16.45	0.56	12.04	0.46	9.58	0.38	9.14	0.36
	8.17	9.06	0.40	10.56	0.43	13.83	0.51	18.53	0.63	23.94	0.76	28.94	0.87	32.48	0.94	33.49	0.97	31.60	0.95	27.27	0.87	21.64	0.76	16.15	0.63	11.84	0.52	9.43	0.43	8.99	0.40
	8.40	8.89	0.44	10.35	0.47	13.54	0.56	18.12	0.69	23.39	0.83	28.26	0.95	31.71	1.04	32.70	1.07	30.87	1.05	26.65	0.96	21.18	0.84	15.84	0.70	11.62	0.57	9.26	0.48	8.83	0.44
	8.68	8.64	0.47	10.04	0.51	13.12	0.60	17.53	0.74	22.61	0.89	27.29	1.02	30.60	1.11	31.56	1.14	29.81	1.11	25.77	1.03	20.51	0.90	15.37	0.75	11.30	0.61	9.01	0.51	8.58	0.48
	8.96	8.48	0.46	9.84	0.50	12.85	0.59	17.18	0.73	22.17	0.88	26.78	1.00	30.05	1.09	31.01	1.12	29.30	1.10	25.34	1.01	20.18	0.88	15.12	0.74	11.13	0.60	8.87	0.50	8.43	0.47
	9.19	8.36	0.06	9.70	0.07	12.65	0.08	16.88	0.08	21.75	0.08	26.23	0.07	29.40	0.05	30.31	0.04	28.64	0.04	24.79	0.05	19.78	0.05	14.84	0.06	10.94	0.06	8.73	0.06	8.31	0.06
	9.43	8.33	0.34	9.65	0.37	12.59	0.44	16.85	0.55	21.77	0.67	26.33	0.78	29.57	0.85	30.53	0.88	28.85	0.85	24.95	0.78	19.87	0.67	14.89	0.55	10.95	0.44	8.72	0.37	8.27	0.34
	9.93	7.86	0.42	9.08	0.45	11.84	0.54	15.85	0.66	20.50	0.78	24.82	0.89	27.91	0.97	28.84	1.00	27.29	0.97	23.61	0.89	18.82	0.78	14.10	0.65	10.38	0.54	8.25	0.45	7.81	0.42
	10.43	7.32	0.40	8.44	0.43	10.99	0.52	14.71	0.65	19.02	0.79	23.04	0.91	25.91	1.00	26.79	1.03	25.37	1.00	21.97	0.92	17.54	0.79	13.17	0.65	9.70	0.52	7.71	0.43	7.28	0.40
	10.94	6.68	0.49	7.68	0.53	9.99	0.64	13.35	0.79	17.27	0.95	20.92	1.09	23.54	1.19	24.36	1.23	23.08	1.20	20.01	1.10	16.01	0.96	12.04	0.80	8.88	0.64	7.06	0.54	6.65	0.49
	11.44	5.88	0.53	6.74	0.57	8.73	0.69	11.65	0.86	15.04	1.03	18.20	1.19	20.46	1.30	21.18	1.34	20.09	1.30	17.46	1.20	14.00	1.04	10.57	0.86	7.83	0.70	6.23	0.58	5.86	0.54
	11.94	5.14	0.47	5.86	0.51	7.60	0.62	10.18	0.78	13.20	0.95	16.04	1.09	18.08	1.20	18.75	1.24	17.81	1.20	15.47	1.10	12.40	0.95	9.35	0.78	6.91	0.62	5.47	0.51	5.12	0.47
	12.45	4.76	0.43	5.42	0.46	7.08	0.54	9.59	0.66	12.60	0.78	15.45	0.89	17.54	0.96	18.26	0.99	17.35	0.96	15.03	0.89	12.00	0.78	8.97	0.66	6.55	0.54	5.13	0.46	4.75	0.43
	12.96	3.56	0.56	4.04	0.60	5.29	0.71	7.19	0.87	9.47	1.05	11.66	1.20	13.27	1.31	13.84	1.35	13.16	1.32	11.40	1.21	9.09	1.06	6.78	0.89	4.94	0.72	3.85	0.60	3.55	0.56
	13.52	1.23	0.74	1.40	0.79	1.83	0.94	2.48	1.15	3.27	1.38	4.03	1.57	4.58	1.70	4.78	1.75	4.55	1.71	3.95	1.58	3.15	1.38	2.36	1.16	1.72	0.95	1.34	0.80	1.23	0.74
	13.63	0.58	0.80	0.66	0.85	0.87	1.01	1.18	1.23	1.56	1.47	1.93	1.67	2.20	1.81	2.29	1.87	2.18	1.82	1.89	1.68	1.50	1.48	1.12	1.24	0.81	1.02	0.63	0.86	0.58	0.80
Line #5	0.00	10.79	0.26	13.10	0.29	17.47	0.35	23.38	0.44	29.88	0.54	35.70	0.63	39.65	0.70	40.39	0.72	37.61	0.70	32.00	0.64	24.88	0.55	18.23	0.44	13.17	0.35	10.66	0.29	10.62	0.26
	0.50	10.62	0.34	12.87	0.37	17.15	0.44	22.95	0.54	29.35	0.65	35.08	0.75	38.97	0.82	39.72	0.84	37.01	0.82	31.50	0.75	24.51	0.65	17.97	0.54	12.99	0.44	10.51	0.37	10.46	0.35
	1.00	10.51	0.38	12.71	0.40	16.93	0.47	22.66	0.58	28.99	0.70	34.68	0.80	38.56	0.87	39.33	0.90	36.67	0.87	31.23	0.80	24.32	0.70	17.84	0.59	12.91	0.48	10.43	0.41	10.35	0.38
	1.50	10.43	0.38	12.59	0.40	16.75	0.48	22.42	0.58	28.72	0.70	34.38	0.81	38.25	0.88	39.04	0.91	36.43	0.88	31.05	0.81	24.21	0.71	17.78	0.60	12.87	0.49	10.39	0.41	10.28	0.38
	2.00	10.36	0.38	12.48	0.40	16.58	0.48	22.21	0.58	28.47	0.70	34.12	0.81	38.00	0.88	38.82	0.91	36.25	0.89	30.92	0.82	24.14	0.72	17.74	0.60	12.85	0.49	10.35	0.42	10.22	0.38
	2.50	10.30	0.38	12.37	0.40	16.42	0.47	22.01	0.57	28.23	0.69	33.87	0.80	37.75	0.87	38.60	0.90	36.07	0.88	30.79	0.81	24.06	0.71	17.70	0.59	12.83	0.49	10.33	0.41	10.16	0.38
	3.00	10.24	0.37	12.26	0.39	16.27	0.46	21.80	0.57	28.00	0.68	33.62	0.79	37.50	0.86	38.38	0.89	35.90	0.87	30.67	0.80	24.00	0.70	17.67	0.59	12.82	0.48	10.30	0.40	10.11	0.37
	3.50	10.17	0.37	12.15	0.39	16.10	0.46	21.58	0.57	27.74	0.68	33.34	0.78	37.22	0.86	38.12	0.88	35.69	0.86	30.52	0.79	23.91	0.70	17.62	0.58	12.79	0.48	10.27	0.40	10.04	0.37
	4.00	10.09	0.37	12.02	0.39	15.91	0.46	21.33	0.57	27.44	0.69	33.00	0.79	36.87	0.86	37.79	0.89	35.41	0.87	30.30	0.80	23.77	0.70	17.54	0.59	12.75	0.48	10.22	0.40	9.97	0.37
	4.50	10.00	0.38	11.88	0.40	15.71	0.48	21.06	0.58	27.10	0.71	32.62	0.81	36.46	0.88	37.40	0.91	35.07	0.89	30.05	0.82	23.60	0.72	17.44	0.60	12.69	0.49	10.16	0.41	9.88	0.38
	5.00	9.95	0.39	11.79	0.41	15.58	0.48	20.90	0.58	26.94	0.70	32.47	0.81	36.33	0.88	37.31	0.91	35.02	0.89	30.02	0.82	23.60	0.72	17.45	0.61	12.69	0.50	10.15	0.42	9.84	0.39
	5.56	9.82	0.18	11.63	0.19	15.36	0.22	20.58	0.25	26.47	0.28	31.86	0.29	35.61	0.30	36.54	0.30	34.29	0.29	29.42	0.27	23.16	0.25	17.15	0.22	12.50	0.20	10.01	0.18	9.71	0.18
	5.85	9.73	0.23	11.52	0.25	15.21	0.30	20.39	0.37	26.26	0.45	31.62	0.51	35.38	0.55	36.32	0.57	34.10	0.55	29.25	0.51	23.02	0.44	17.05	0.37	12.42	0.30	9.94	0.25	9.63	0.23
	6.36	9.50	0.28	11.23	0.31	14.81	0.37	19.83	0.46	25.53	0.55	30.74	0.63	34.39	0.69	35.32	0.71	33.18	0.69	28.48	0.63	22.45	0.55	16.64	0.45	12.14	0.36	9.72	0.30	9.40	0.28
	7.12	8.85	0.34	10.43	0.38	13.70	0.46	18.30	0.58	23.50	0.71	28.25	0.82	31.57	0.90	32.42	0.93	30.48	0.90	26.22	0.82	20.73	0.70	15.43	0.57	11.30	0.45	9.06	0.37	8.76	0.34
	7.96	7.63	0.44	8.96	0.49	11.72	0.60	15.57	0.75	19.90	0.91	23.84	1.05	26.57	1.15	27.27	1.18	25.68	1.15	22.15	1.04	17.60	0.89	13.18	0.73	9.72	0.58	7.83	0.47	7.56	0.44
	8.67	6.71	0.51	7.85	0.56	10.27	0.68	13.66	0.84	17.51	1.02	21.02	1.16	23.47	1.27	24.13	1.30	22.74	1.26	19.63	1.16	15.59	1.01	11.68	0.83	8.61	0.67	6.91	0.55	6.65	0.51
	9.17	6.17	0.44	7.21	0.49	9.44	0.59	12.60	0.74	16.21	0.90	19.52	1.03	21.86	1.13	22.50	1.16	21.22	1.13	18.33	1.03	14.56	0.89	10.89	0.73	8.00	0.58	6.39	0.48	6.12	0.44
	9.68	5.53	0.45	6.44	0.49	8.42	0.60	11.25	0.75	14.49	0.92	17.48	1.05	19.59	1.15	20.19	1.18	19.07	1.15	16.49	1.05	13.12	0.90	9.83	0.73	7.23	0.58	5.76	0.48	5.49	0.45
	10.18	4.82	0.29	5.58	0.32	7.28	0.40	9.73	0.52	12.55	0.66	15.17	0.78	17.02	0.87	17.57	0.90	16.61	0.86	14.38	0.77	11.46	0.64	8.60	0.50	6.33	0.39	5.04	0.31	4.79	0.29
	10.69	3.31	0.37	3.82	0.41	4.95	0.52	6.57	0.67	8.42	0.85	10.12	1.00	11.32	1.11	11.68	1.15	11.06	1.10	9.61	0.99	7.71	0.83	5.83	0.65	4.33	0.50	3.47	0.40	3.29	0.37
	11.24	1.11	0.05	1.27	0.06	1.63	0.07	2.14	0.09	2.70	0.12	3.21	0.14	3.57	0.16	3.67	0.16	3.48	0.16	3.04	0.14	2.47	0.11	1.89	0.09	1.42	0.07	1.15	0.05	1.10	0.05