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Evaluating the Intra-variability and Inter-variability of Fibers in Cotton T-shirts using Microspectrophotometry

Brianne Miller
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**Evaluating the Intra-variability and Inter-variability of Fibers in Cotton T-shirts using
Microspectrophotometry**

Brianne Miller

**Thesis submitted to the
Eberly College of Arts and Sciences
at West Virginia University
in partial fulfillment of the requirements
for the degree of**

**Master of Science
in
Forensic and Investigative Science**

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Department of Forensic and Investigative Science

**Morgantown, West Virginia
2013**

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ABSTRACT

Evaluating the Intra-variability and Inter-variability of Fibers in Cotton T-shirts using Microspectrophotometry

Brianne Miller

The objective of this study was to evaluate and compare the differentiation of cotton fibers by the means of intra-garment and inter-garment comparison while utilizing Microspectrophotometry. Five different colors of cotton fibers were used: gold, kelly green, orange, red and royal. Ten t-shirts of each color were used in this study. Phase I of this study involved using the CRAIC® QDI QDS II™ Stereomicrospectrophotometer to produce a spectrum of the front, back, sleeve and armpit of the t-shirt. These sections were then compared to the color chips in the Munsell Book of Color by observing them with the naked eye. Phase II of this study involved varying the boxcar width, the average scans and the integration time to find the optimal settings that should be used when collecting spectra on the CRAIC® QDI 1000 Microspectrophotometer. A time trial was completed during Part 1 and Part 2 of Phase III to determine the proper time the instrument's lamp should be allowed to warm-up prior to collecting spectra of samples. Phase IV of this study involved preparing 200 slides of fibers from the front, back, armpit and sleeve of each color repeated for all ten t-shirts to allow for the intra-garment comparison. Phase V used the front section of each t-shirt and a fiber from that section was cut into three different sections providing 150 slides to demonstrate the inter-garment comparison. To conclude the study, the five colors used in this study were compared to each other to determine if they could be differentiated.

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I. Literature Review

The importance of textile fibers can be dated back 3000 years. More recently, textile fibers have been found to have a wider application including architectural and industrial textiles [1]. There are two categories of textile fibers, including man-made and natural fibers. Man-made fibers are synthesized through a chemical process and can be subdivided into synthetic fibers and regenerated fibers. Synthetic fibers are made from fibers that have been spun from synthesized fiber-forming polymers [1]. Regenerated fibers are produced from naturally occurring polymers by a technique that includes the regeneration of the original polymer structure [1]. Natural fibers are ones that occur in nature and have three classifications, including animal (protein), vegetable (cellulose) and mineral (asbestos).

Synthetic fibers include polyamides, aramids, polyesters, polyurethane, polyolefin and polyvinyl derivatives. Nylon 6.6 and Nylon 6 are the two most widely manufactured polyamides [1]. Nylon fibers and fabrics are the most abrasion-resistant of all the common textile fibers. Their smooth and regular appearance makes them shiny and translucent. Nylon can be dyed with a variety of dye stuffs making it ideal for the carpeting industry. Nomex and Kevlar are the most commonly encountered aramids [1]. Aramid fibers are resistant to stretching and have a high chemical and heat resistance. Nomex is primarily used for fire/heat retardant purposes such as heat protective clothing. The application of Kevlar includes conveyor belts and reinforcement fibers in sporting goods because it is five times stronger than steel and ten times stronger than aluminum [1]. Man-made fibers cannot be identified based on their morphology alone. Instead, identification is achieved through the determination of the fiber's optical properties, such as refractive index, estimation of birefringence and determination of the sign of elongation [2].

Animal (protein) fibers are the most important substance in living matter [1]. Proteins are chain-like molecules formed by α -amino acids and peptide linkage. The difference in the proteins is determined by the differences between the side groups (R) that are attached to the main chain. There are 20 different amino acids with different side groups that are known [1]. Examples of animal fibers are silk and wool. Silk is very strong, resistant to creasing and has a luxurious appearance. Wool is made from the protein keratin, which is produced in the fiber follicle in the skin of sheep. They are a rough, scaly fiber making them readily transferrable during contact. The use of mineral fibers (asbestos) has been greatly reduced in industry due to its health hazards. Asbestos is replaced whenever possible by glass or Nomex [1]. The most important form of asbestos is called *chrysotile* making up 90% of the production. Vegetable (cellulose) fibers are divided into three groups which are based on the section of the plant from which they were harvested; including seed, bast (stem) and leaf [1]. Cotton is an example of a seed fiber. It is attached to the seeds on the genus *Gossypium* which is found in mostly all subtropical climates where there are seas, lakes, and large rivers [1]. The cotton fiber is greatly elongated and consists of protoplasmic material bounded by a primary wall with the cuticle on its exterior surface. During the maturing period, the fiber is thickened which occurs by the deposition of cellulose on the interior surface of the primary wall forming the secondary wall [1]. As drying continues the walls of the fiber shrink, the lumen becomes smaller and flatter and the fiber develops convolutions or twists [1]. The convolutions are important morphological features that are observed in the microscopic examination of cotton. Flax (linen) and hemp are two examples of bast fibers and seal and abaca (Manila hemp) are examples of leaf fibers. There are three important aspects of natural fiber identification. They include the authentic reference specimens, sample preparation and careful examination of the most characteristic features by appropriate

means [2]. Cotton can be recognized by its flattened and twisted appearance and its failure to be extinct when between crossed polars. Cotton fibers should be mounted in water or glycerine. This media helps to swell the fibers to display their morphological characteristics [2].

The examination of trace evidence which include fibers, paints and hair is one of the most important types of physical evidence in the forensic field. Fibers are interesting in forensic science due in part because they have a high degree of variability within their different colors and shades. They also can be transferred during contact [3]. This is based on the ideas of Edmond Locard. His theory simply states that every contact leaves a trace [4]. Fibers that are left at the crime scene can either link a known suspect to the crime or provide investigative leads if the suspect is unknown. Fiber evidence can also provide reconstruction information that is designed to answer a specific question regarding the case and can offer clues about the case or sequence of events. To demonstrate the importance of reconstruction, there was a particular case involving a theft and murder. Suzuki [3] explains that the suspect admitted to entering into the house and finding the body while committing the theft. The actual crime scene was reconstructed in accordance to the man's confession. The characteristic dark yellowish-green woolen fibers that were worn by the suspect while entering the home were chosen as the target fibers. All the fibers that presented the same morphological similarities were further examined using microspectrophotometry (MSP) in the ultraviolet-visible range. The number of fibers that were found at each area of the body, mattress, and blankets were compared to the reconstructed scene and the actual investigation. A significant difference was found. This result concluded that there was a strong contact between the victim and the suspect. There were significant discrepancies between the described behavior of the suspect and the analyzed distribution of the dark yellowish-green woolen fibers.

For the collection of fiber evidence, or any other type of trace evidence from the crime scene, multiple techniques are utilized. Hand retrieval can be used when an alternative light source makes the fiber visible [4]. Adhesive tape lifting is the most common and effective method of collecting trace evidence from the crime scene because it is simple, inexpensive and non-destructive. Combing or brushing is generally used when removing trace evidence from hair [4]. Vacuuming is used to collect the evidence in a special trap that holds a paper. Vacuuming had proven to be ideal for surfaces that are damp or dirty, although vacuuming tends to pick up a large amount of material making the search for specific fibers tedious. Whatever technique is employed, it must be easy for the evidence collector to work with so that tangible results are obtainable [4]. Once the trace evidence has been properly collected from the crime scene using the mentioned techniques, appropriate comparison examinations are carried out in the laboratory.

Determination and comparison of the fiber color is the first applied technique (after general microscopy) that should be carried out in the forensic laboratory. Colorimetry is the science of measurement of the observed color and its translation into a mathematical form to determine and specify color [5]. The recognition of color by humans is not objective, thus problems with human color vision can lead to certain restrictions for the forensic fiber examiner. Fabrics and fibers can share the same hue. Hue is the property of light by which the color of an object is classified as red, blue, green, or yellow in reference to the spectrum, even though they were dyed with varying dyes or mixtures of dyes [5]. This is known as metamerism. Metamerism occurs when two or more colored items are produced with different dyes, pigments or coloring agents that appear to be the same color under certain light conditions [6]. The general concern in the field of forensic science whether or not the colors can be differentiated through the UV-VIS spectra. In 1980, Chamberlin and Chamberlin established that two different approaches that

would assist in defining and measuring color. The Munsell Color System is used for visual comparison. It uses standards which are accepted as references and the CIE System is an instrumental measurement of parts of the color in terms of the relative amounts of each wavelength present. The Munsell Color System divided three-dimensional color space into hue (H), value (V) and chroma (C) [7]. The hues are arranged in a circle and are divided into five primary hues plus five intermediate hues. In each hue region, H is normally denoted in four areas; 2.5, 5, 7.5 and 10 [8]. The vertical axis symbolizes V ranging from black to white. The C varies from 0 to 12, with 12 being the most saturated color of the given H and V [8]. The Munsell Book of Color now has over 1500 color samples. The Munsell specifications contain over 2000 color samples, which are colored chips dyed with pigments [5]. According to the CIE System, the human eye can only distinguish three dimensions of color- hue, saturation and intensity. This model is developed based upon the tristimulus theory of color perception. The color of an object is determined by type of light source, the viewing conditions present and the color response of the observer. [5] The cell receptors in the eye are responsible for distinguishing levels of brightness and the color receptors in the eye are responsible for color vision. At the Common International de L'Eclairage Conference in 1931, the mathematical treatment of color data was designed. In forensic science Illuminant A (incandescent light), Illuminant B (noon sunshine) and Illuminant D65 (daylight) are of the most interest. [5] However, once this is accomplished, it is found that any color can be expressed in terms of the two color coordinates x and y . The colors which can be matched by combining a given set of three primary colors are represented on the chromaticity diagram by a triangle joining the coordinates for the three colors. Along with the determination of color, it is also essential to use different instruments and techniques during the examination of fiber evidence.

$$X = \int_{\lambda} L_{\lambda} * x_{\lambda} * \Delta\lambda$$

$$Y = \int_{\lambda} L_{\lambda} * y_{\lambda} * \Delta\lambda$$

$$Z = \int_{\lambda} L_{\lambda} * z * \Delta\lambda$$

Equation 1: Calculating the Trimstimulus values

$$x = X/(X + Y + Z)$$

$$y = Y/(X + Y + Z)$$

$$z = Z/(X + Y + Z)$$

Equation 2: Calculating the chromaticity coordinates

Microscopy is an essential examination technique in all aspects of forensic examination and comparison of fibers [2]. Microscopes are necessary to observe fiber evidence no matter what tests or observations are being completed. When preparing a fiber for a specific examination in the laboratory, it is important to understand both the microscope and the type of fiber that one may be dealing with [2]. The stereomicroscope is utilized for the searching of small items of evidence and to manipulate individual fibers. To directly compare fiber properties, such as diameter, color and morphology, the comparison microscope is used [2]. Fluorescence microscopy can be used to detect illumination of the fibers originating from the dyes in the fiber.

UV-VIS MSP is used to distinguish the colors of fibers that have different spectral colors, but appear similar to the naked eye.

MSP is a method that has been in use for over 40 years in the forensic field, but has been used in biological disciplines for more than 70 years. Casperson developed MSP for biological science in order to locate and identify chemical constituents within the cell [9]. The application of MSP for the examination of fibers was first described by Amsler in 1959 [5]. MSP was established as a quick and non-destructive method for examination of trace evidence. This instrument is used as a comparative technique when examining fibers rather than for identification purposes. The microspectrophotometer allows measurement of the absorption of electromagnetic radiation by microscopic amounts of many kinds of materials in the visible region (400-800 nm) and the ultraviolet region (200-400 nm) of the electromagnetic radiation spectrum [5]. Absorption can be described by an electron becoming excited if the frequency of the incident electromagnetic radiation matches or closely corresponds to the difference in energy between two electronic states causing electronic transition from the highest occupied molecular orbital to the lowest unoccupied molecular orbital [5]. The chromophore, which is the colored part of the molecule, is responsible for the absorption of the radiation in the UV-VIS region. When using the MSP for the examination of fibers, two parameters are used; the transmission (T) and the absorbance (A). The physical result of absorption measurement is a spectrum. An absorbance spectrum that has multiple points of identification can be compared successfully, but if the spectrum is broad and has little detail it is considered less discriminating. Wiggins [10] uses the first derivative of an absorbance spectra to determine if it can provide additional discrimination for fiber evidence. In natural fibers, there is a higher level of intra-sample variation. In the black cotton fibers, the original spectra showed little variation meaning the first

derivative also showed little variation. In this study, it was determined that calculating the first derivative can provide extra points of comparison aiding the interpretation of the evidence when the absorbance spectra is tightly grouped with regard to the absorbance level. The spectrum that is produced by the MSP provides important information about the conjugated electron systems, but does not provide any information about the spatial arrangement [5].

MSP is an important technique not only used for the comparison of fiber evidence, but for paints and hairs as well. Kopchick [11] analyzed 120 black and gray vehicle paints. During this study it was found that MSP provided discrimination information in the achromatic paint samples due to the secondary chromatic pigments added in the achromatic paint formula. It can be concluded that MSP should be incorporated in the analytical scheme when black and gray topcoats are included. In the study conducted by Barrett [12] 55 different red hair dyes were analyzed using UV-VIS MSP. It was found that the presence of hair dyes reduces the intra-sample variability of the hair color. Even though all these different studies have been conducted, trace evidence continues to be corroborative evidence. Therefore, trace evidence can only confirm or infirm preexisting hypotheses.

To demonstrate the significance of trace evidence examination ensuring its acceptance by the forensic science community two methods have been developed; population studies and target studies. Population studies are used to describe the sample demographics of a certain type of trace evidence. They also provide feedback either confirming or altering the analyst's prospects on the number of materials that may be transferred or persisted [13]. Target fiber studies use a specific trace evidence sample type and then the items are searched for examples that are indistinguishable. Target studies are used to answer specific case-related questions of transfer, persistence and significance. In the study conducted by Houck [13] twenty unrelated

trace evidence cases were selected at random from the author's casework. These cases were then split into three categories (bank robbery, kidnapping and homicides) and were cross-compared. The fibers were further divided into natural and manufactured groups as well as by their color. They were then analyzed using light microscopy, fluorescent microscopy and MSP. 2083 fibers were cross-compared making 2,163,603 comparisons. No two fibers were found to exhibit the same characteristics when examined using the techniques mentioned above. Therefore, it can be stated that it is rare to find two unrelated items having foreign fibers that are analytically indistinguishable.

The objective of this study is to evaluate the differentiation, if any, in the color of the cotton t-shirt samples (royal, kelly green, orange, red and gold), which included an intra-garment fiber comparison and an inter-garment comparison. The intra-garment comparison will determine if there is variability in the spectra within the same garment in different areas of the same garment, for example the front, back, armpit and sleeve. The inter-garment comparison will determine if there is variability in the spectra between the same fiber. In the study performed by Wiggins and Drummond [14] the spectra were divided into matching sub-populations by overlaying the spectra and observing the differences between the spectra. These include the trough or decrease in the absorbance and the characteristics of the peaks and the noise level. The Munsell Color System will provide a prerequisite for determining and specifying the color of the fibers that are being analyzed. Conducting a fiber study, will hopefully provide more conclusive and significant results that are needed in the trace evidence realm.

Much useful information has resulted from target and population studies and examination of the blocks of color in both natural and man-made fibers. The study of the color blocks can provide useful information about natural fibers. They often rely on color as the main comparative

examination technique, because they lack a wide range of morphological characteristics [15]. All of the research carried out has shown that man-made fibers, such as polyester, exhibit a very high degree of polymorphisms, meaning they have multiple forms, providing specific examples with a high degree of individuality [15]. In the study conducted by Grieve [15] 263 blue polyester fibers were obtained. Blue was chosen because it is the most common fiber color in forensic casework and polyester is found in a wide variety of textiles. The fibers were first examined using bright field microscopy and classified according to their cross-section and texture. Spectra from each group were recorded using a Zeiss 800 spectrophotometer. Based on the results that were obtained from this study, it could be determined that the chance of two blue polyester fibers matching is very low, giving them a high discriminating power.

A study conducted by Biermann [16] showed the discriminating power and evidential value of blue and red cotton fiber. This value can be very high when using light microscopy, fluorescence microscopy and UV-VIS MSP. Three hundred and fifty-one blue and 287 red cotton fibers were collected and the Munsell Color System was applied to make sure that the fibers selected were in the correct block of color. Ninety-four percent of the blue cotton fibers examined could be differentiated. The discriminating power of the method using both fluorescent microscopy and MSP was determined to be 0.9996. Out of 275 red cotton fibers examined 93% of them could be differentiated. Using the same techniques, the discriminating power was found to be 0.9995. Although blue and red cotton fibers make up a high percentage of textile fibers, these results prove that when using the aforementioned examination techniques fibers can still provide excellent evidence when involved in forensic fiber cases. Palmer [17] aims to complement current studies to determine to what degree the UV-VIS MSP can discriminate the blue non-denim blue cotton fibers. Out of 100 garments that were gathered, 9 different items of

clothing were sampled: trousers, skirts, short and long-sleeved shirts and t-shirts, jumpers, hooded jumpers and polo shirts. From 78 different brands represented, 23 of them were classified as mid-blue and 61 of them were classified as dark blue. When comparing the spectra of these samples, it was determined that these outcomes are in accordance with the results obtained by Biermann. Also evidenced was that UV-VIS MSP alone can provide a similar discriminating power when combined with microscopy. With the evidential value demonstrated, the problem that remains is the proper pathways that should be taken from the initial search to the comparison. It is expected that with the data now available, laboratories will re-evaluate their analytical pathways.

Figure 1: Conventional Pathway [17]

Figure 2: Alternative Pathway [17]

Through the use of this alternative technique the results of this study provide more discrimination in cotton fibers. This proposed method provides shorter analysis time and more effective examination in the forensic laboratory.

II. Materials/Methods

Materials

T-shirts used

Five varying non-worn (adult small) cotton shirts were obtained from Underground Printing® in Morgantown, West Virginia. The colors of the t-shirts were chosen based on their current popularity in forensic casework today which includes; Gold, Kelly Green, Orange, Red and Royal. Ten shirts of each color (50 total) were obtained. Two inch by 2 inch squares were cut out from the front, back, sleeve and armpit of each t-shirt. The hue (describing the color), value (overall intensity to how light or dark a color is) and chroma (strength or dominance of the hue) of the t-shirts were determined by using the Munsell Book of Color.

	Hue	Value	Chroma
Red	5R	4	14
Orange	2.5 YR	6	14
Gold	10 YR	7	14
Kelly Green	7.5 G	4	8
Royal	5 PB	4	12

Table 1: The colors of the five t-shirts based on the Munsell Color Book

Sample Prep

Each 2 inch by 2 inch square of the t-shirt was labeled according to which segment of the t-shirt it came from, for example, Kelly Green A_F. This label indicates it was the first of the ten shirts and originated the front square. For the first part, each of the 200 Fisherbrand® microscopic slides were prepared by extracting between 5 and 10 fibers from the square using

tweezers and labeled the same way as the t-shirt squares. My initials (BM) were also included on each slide. The microscopic slides were placed under the stereomicroscope for clear visualization of the fibers and to place them on the slide. One to two drops of the mounting medium Entellan was then placed on each slide. Lastly, Fisherbrand® cover slips were used to secure the fibers onto the slides and allowed to dry. For the second part, 150 microscopic slides were prepared by only using the front square of every color t-shirt. One fiber was pulled from the square and then cut into three sections. The microscopic slides were prepared the same way as the first part, but labeled according to the section. For example, Kelly Green A_1, which signifies the first kelly green t-shirt and the first section. The tweezers and stage of the stereomicroscope were cleaned with isopropyl alcohol after each sample was prepared.

Instruments Used

After the t-shirts were cut and observed using the Munsell Color system, a CRAIC® QDI QDS II™ Stereomicrospectrophotometer was used to collect spectra of each square. This instrument consists of a microscope with a stabilized light source, a spectral dispersive element (monochromator), a detector, and a data processing device. The microscope which is coupled with the spectrophotometer is what allows the visualization of the fibers on the slides. The microscope is set to 40x objective for proper visualization of the fibers. The light source emits all of the wavelengths of the ultraviolet and visible light via a Xenon lamp source that is set to 75 W. The power lamp source is turned on prior to running any samples and allowed to warm up for 30 minutes before use. The monochromator separates this light into its different components, namely the different wavelengths and different colors, before it reaches the sample. The monochromator produces monochromatic light of a certain spectral bandwidth. The sample is scanned step by step, and a spectrum is created point- by- point. The detector component is what converts the light into an electric signal. The data processing device represents the CRAIC® software, which allows for the display of the spectrum and the management of the parameters. When this light, which is given a wavelength (λ) and intensity (I), hits the sample, it can then be absorbed. For example, in this study, when spectrum was collected in absorbance mode, the minimum point on the spectrum (from 350 nm to 750 nm) is where the instrument is transmitting the color of the fiber and the maximum point on the spectrum is where the instrument is absorbing the color (complimentary color of the sample).

$$A_{\lambda} = -\log T = \log \frac{I_0}{I}$$

A- Absorbance T- Transmittance I- Intensity

Equation 3: Calculating the absorbance values

The CRAIC® QDI 1000 Microspectrophotometer was used to collect the spectra and the chromaticity values of the slides that were previously prepared. This instrument is configured and works in a similar way as the a CRAIC® QDI QDS II ™ Stereomicrospectrophotometer. The microscope also coupled with the spectrophotometer, is what allows the visualization of the fibers on the slides. The microscope is set to 360X objective for proper visualization of the fibers. The light source in this instrument emits all of the wavelengths of the ultraviolet and visible light via a Xenon lamp source that is set to 75 W.

Photograph 1: The CRAIC® QDI 1000 Microspectrophotometer

This instrument contains three different light paths; the transmitted light, the incident light and the image light. The transmitted light path contains the lamp housing for the 100W mercury or the 75W xenon lamp, the aperture diaphragm, the imaging system of the aperture diaphragm, the field diaphragm, the polarizer and the condenser. The selected lamp is turned on before running any samples and allowed to warm up, depending on the mode chosen to collect the spectra; absorbance, transmittance, reflectance or fluorescence. The aperture diaphragm determines the resolution, the depth of field and the contrast of the microscope image. The best resolution is obtained when the apertures of the objective and condenser are approximately the same. The incident light path contains the light source, the aperture diaphragm, the field diaphragm, and the reflector or filter cube. The image light path consists of the objective, the tube optics, the tube

and the eyepiece. The instrument also contains a stage where the slides are placed, as well as, a course and fine adjustment knob for focusing of the sample.

Software

The CRAIC® CCD Image Software was used for both the QDS QDI II™ Stereomicrospectrophotometer and the QDI 1000 Microspectrophotometer to view and take photos of the fibers, t-shirt squares and the Munsell Color chips placed on the stage of the instruments. Once the sample is placed on the stage, the focus and zoom control knobs are operated to locate it. A black square is placed in the center of the screen. This square represents the location from where the instrument collects the spectrum. The software provides a window that allows the user to choose what resolution they want to use, being full resolution of 1280 X 1024 to the smallest resolution of 320 X 240. The user is also able to change the exposure of the photo by pushing the Auto button or positioning the slider bar to a suitable level. The white balance and saturation may also be adjusted by the user. The “live” mode at the top of the screen allows the user to visualize the sample and the “capture” mode allows for the image to be taken and stored.

Photograph 2: Kelly Green A_F

Photograph 3: Munsell Chip 7.5G 4,8

Photograph 4: Kelly Green A_F on the CRAIC® QDS QDI II™ Stereomicrospectrophotometer

Operating the QDS QDI II™ Stereomicrospectrophotometer, the CRAIC® Data Acquisition Software is used. This program provides different rows that contain all the instrument controls and parameters. The first row exhibits the program name and the second row enumerates the menu which contains the file, view and edit drop down items. The third row shows the toolbar which allows for the opening and closing of the spectrum or spectra, saving the spectrum, auto scaling the spectrum in the x and y direction, and illustrate and edit the peak markings. The spectrum is then displayed. The units are revealed as well as the file name, the scan time, and the objective. The fourth row contains the instrument controls. The “My Folder” button is where the user can set the experiment ID chosen for the particular task. The “AutoSet™ Optimize” button optimizes the instrument. “Collect Darkscan” will collect the instruments background spectrum, as when the light is totally blocked from the spec head and “Collect Reference” will collect a reference spectrum, allowing light to pass through the spec head. The “Collect SampleScan” is used to collect the spectrum of the sample. The “AutoCal™

Wavelength Check” and the “AutoCal™ Photometric Check” is used to check the instruments calibration with the NIST® Traceable Standards.

Figure 3: Dark Scan on the CRAIC® QDS QDI II™ Stereomicrospectrophotometer

Figure 4: Reference Scan on the CRAIC® QDS QDI II™ Stereomicrospectrophotometer

For the CRIAC® QDI 1000 Microspectrophotometer, Ocean Optics® SpectraSuite® Spectrophotometer Operating Software was used for the collecting of the spectrum for each sample to determine the intra and inter-variability of the fiber samples. This software contains three rows of controls and parameters. In the “File” drop down box, the type of measurement that the user wants to perform, which can be either absorbance, transmission, reflection, relative irradiance or fluorescence measurement is found here. In the “View” drop down box, the user is able to view the different graph layering options. Annotations, legends, a trend line, or peaks can be added to the spectrum using this tool. The “Processing” drop down box allows the user to edit the color of the spectrum. The acquisition tool bar consists of the integration time, the scans to average and the boxcar width. The integration time is the measurement of the detector monitoring the photons, thus the longer the integration time the longer the detector is monitoring. The scan to average specifies the number of spectral acquisitions that the device driver accumulates before the software receives a scan. The higher the scans to average value, signifies the better signal to noise ratio. The boxcar width sets the boxcar smoothing width, which averages across the spectral data. The greater the boxcar width value, the smoother the data and the higher the signal to noise ratio. A loss in spectral resolution will result if the boxcar width value is set too high. The color space button that appears on the acquisition tool bar is used to measure the color of the sample being analyzed. This setting of the software allows the user to choose the reflectance settings, the standard observer, and the standard Illuminant. Using this setting also provides the tristimulus values (X, Y, Z), 1931 color space chromaticity coordinates (x, y, z) and the chromaticity diagram for the sample. Once the spectrum that appears in the center of the screen, there are buttons that allow the user to save the spectrum, copy the absorbance and wavelength values into a Microsoft® Excel or copy the spectrum into a Microsoft® Word document. The user can also change the range of the x and y values in the spectrum by selecting the magnifying glass button. The black light bulb button is used to collect a dark scan and the yellow light bulb button is used to collect a reference scan.

Figure 5: Dark scan on the CRIAC® QDI 1000 Microspectrophotometer

Figure 6: Reference scan on the CRIAC® QDI 1000 Microspectrophotometer

Calibration of Instrument

To calibrate and validate the CRAIC® QDI QDS II™ Stereomicrospectrophotometer and the CRIAC® QDI 1000 Microspectrophotometer, NIST® Traceable Standards were used to check wavelength calibration and photometric calibration of the instrument. A Holmium Oxide filter and a Didymium filter was utilized to test the wavelength calibration and ND 0.1, 0.5 and 1.0 filter were used to check the photometric calibration. NIST® provides a list of the certified wavelengths in nanometers (nm) and the combined uncertainties that must be met in order to properly validate and calibrate the instrument before use. This procedure was done by placing each filter below the stage of the instrument. The “Auto Cal™ Wavelength” button was selected on the CRAIC® QDI data acquisition software. An absorbance spectrum was collected for the photometric filter and transmission mode used for the wavelength filters. If a “smiley face” appeared, the instrument was within the established calibration limits. If a “frowning face” appeared, the steps had to be repeated. When using the Ocean Optics® software, the absorbance and wavelength values obtained were compared to the ones that were provided by NIST®.

Figure 7: Didymium Filter on the CRAIC® QDI QDS II™ Stereomicrospectrophotometer

Figure 8: Holmium Oxide filter on the CRAIC ® QDI QDS II™ Stereomicrospectrophotometer

Figure 9: ND 0.1 filter on the CRAIC ® QDI QDS II™ Stereomicrospectrophotometer

Figure 10: ND 0.5 filter on the CRAIC ® QDI QDS II™ Stereomicrospectrophotometer

Figure 11: ND 1.0 filter on the CRAIC ® QDI QDS II™ Stereomicrospectrophotometer

NIST Peak	MSP Value	Difference	Passed?
360.2	359.4	0.8	Yes
418.5	417.2	1.3	Yes
445.8	445.5	0.3	Yes
536.0	535.8	0.2	Yes
637.2	636.5	0.7	Yes

Table 2: The NIST® certified wavelengths for the Holmium Oxide Filter

NIST Peak	MSP Value	Difference	Passed?
441.2	440.9	0.3	Yes
513.5	512.9	0.6	Yes
684.4	683.5	0.9	Yes
806.8	806.2	0.6	Yes

Table 3: The NIST® certified wavelengths for the Didymium Filter

Wavelength	NIST	MSP	Difference	Passed?
400	0.106	0.109	-0.003	Yes
500	0.095	0.093	0.002	Yes
635	0.085	0.085	-0.000	Yes

Table 4: The NIST® certified wavelengths for the ND 0.1 Filter

Wavelength	NIST	MSP	Difference	Passed?
400	0.524	0.534	-0.010	Yes
500	0.510	0.509	0.001	Yes
635	0.474	0.476	-0.002	Yes

Table 5: The NIST® certified wavelengths for the ND 0.5 Filter

Wavelength	NIST	MSP	Difference	Passed?
400	0.977	0.996	-0.019	Yes
500	1.008	1.021	-0.013	Yes
635	1.009	1.026	-0.017	Yes

Table 6: The NIST® certified wavelengths for the ND 1.0 Filter

Figure 12: Holmium Oxide filter on the CRAIC® QDI 1000 Microspectrophotometer

Figure 13: Didymium filter on the CRAIC® QDI 1000 Microspectrophotometer

Figure 14: ND 0.1 filter on the CRAIC® QDI 1000 Microspectrophotometer

Figure 15: ND 0.5 filter on the CRAIC® QDI 1000 Microspectrophotometer

Figure 16: ND 1.0 filter on the CRAIC® QDI 1000 Microspectrophotometer

When looking at the spectra that were collected for the wavelength and photometric filters on the CRAIC® QDI 1000 Microspectrophotometer, there is noise being produced from 250 nm to 350 nm. This noise is produced here because the glass microscopic slide does not absorb UV light, which is from 20 nm to 400 nm in the visible light spectrum. For the QDI QDS II™ Stereomicrospectrophotometer, a sulfate standard was required in order to collect the reference and dark scans. To prepare this standard, Fisherbrand® Aluminum sulfate, $\text{Al}_2(\text{SO}_4)_3$, and Fisherbrand® Barium nitrate, $\text{Ba}(\text{NO}_3)_2$ was obtained from Clark Hall of West Virginia University®. The standard was prepared by making .01 M solution using .059 g of $\text{Al}_2(\text{SO}_4)_3$ and .026 g of $\text{Ba}(\text{NO}_3)_2$. The resulting powders were placed into two different 100 mL beakers. Ten mL of distilled water was added to each beaker and mixed until dissolved. A filter was inserted in a plastic funnel and placed into a new 100 mL beaker. The two solutions were mixed and poured into the filter paper until all the liquid had passed through. The filter paper was then placed into an oven at 120°C for two hours for drying. The powder left on the filter paper was scraped onto the paper, placed upon a concave dish and then was pressed and flattened in the

center of the dish. These steps were repeated to allow for a sufficient amount of prepared standard.

$$\frac{594 \text{ g}}{\text{mol}} \times \frac{.01 \text{ mol}}{\text{L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times 10 \text{ mL} = .0594 \text{ g of Aluminum sulfate}$$

$$\frac{261.34 \text{ g}}{\text{mol}} \times \frac{.01 \text{ mol}}{\text{L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times 10 \text{ mL} = .0261 \text{ g of Barium nitrate}$$

$$\frac{594 \text{ g}}{\text{mol}} \times \frac{.1 \text{ mol}}{\text{L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times 10 \text{ mL} = .594 \text{ g of Aluminum sulfate}$$

$$\frac{261.34 \text{ g}}{\text{mol}} \times \frac{.1 \text{ mol}}{\text{L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times 10 \text{ mL} = .261 \text{ g of Barium nitrate}$$

Equation 4: Determination of .01 M and .10 M sulfate standard

Experimental

Phases and Methods

Phase I

For preliminary examination of the 2 by 2 inch squares of every t-shirt, the QDI QDS II™ Stereomicrospectrophotometer was used. This was accomplished by placing each square on the stage of the instrument. A spectrum was collected of each of the Munsell chips that best matched each color of the squares, represented in Table 1. The Munsell Chip was placed on the stage of the instrument. A dark scan and a reference scan were collected before the sample spectrum. The absorbance and wavelength values were recorded and plotted into Microsoft® Excel for every spectra 400 nm to 800 nm, revealing an integration time of 77.04 ms and an average scan of 20. To properly compare the Munsell Chips to their respective color t-shirt squares, the absorbance and wavelength values that were obtained from the QDI QDS II™ Stereomicrospectrophotometer were plotted against one another to determine if their minimum

and maximum wavelength values fell into their respected color region in the visible light spectrum.

Phase II

The Ocean Optics® Spectral Suites software had never previously been used before coupled with the QDI 1000 Microspectrophotometer. A key factor before using the software was the required validation in order to obtain the best possible spectrum. This was accomplished by fluctuating three different settings in the software previously mentioned, which are the average scans, the boxcar width and the integration time. The sample Kelly Green A_F was used for this part of the experiment. The instrument was permitted to warm up for 30 minutes before any spectra were collected. The Kelly Green A_F slide was placed on the stage of the instrument. A dark and reference scan was collected and saved before collecting every spectra. For the first experiment, the boxcar width was changed while the average scans were kept constant at 20 and the integration time was kept constant at 100ms. The boxcar width was set to 1, 3, 5, 7, 9, 11, 15, 25, 50, 100 and 150. For the second experiment, the average scans were changed while the integration time was kept constant at 100 ms and the boxcar width was kept constant at 5. The average scans were set to 2, 5, 10, 15, 20, 30, 50 and 100. For the third part of this experiment, the integration time was changed while the boxcar width was kept constant at 5 and the average scans were kept constant at 20. The integration time was set to 10 ms, 20 ms, 30 ms, 50 ms, 100 ms, 200 ms, 300 ms, 500 ms and 1000 ms. A spectrum was collected using wavelengths from 380 nm to 780 nm and absorbance from 0 to 1. These values were plotted into Microsoft® Excel for each different variation in absorbance mode. The least squares method was used for all three sets of data to determine which average scan, boxcar width and integration time had the minimal deviations squared from the data sets that were collected. An example of the average scan calculation is shown below.

$$\text{Average scans: } = (A_{\text{max scan}} - A_{\text{scan } x} + k)^2$$

Equation 5: Calculation of the Least Squares Method

The absorbance values that were obtained from the highest number of average scans were used as the reference spectrum. The rest of the average scans (5, 10, 15, 20, 30, 50 and 100) were subtracted from the absorbance values of the reference spectrum. The sum of the squared absorbance values was then calculated. The Solver® add in from Microsoft® Excel was used to adjust the baseline to minimize the sum of the squares. Solver® uses an objective of the sum of the squares and minimizes by varying the value, k. These steps were repeated for the boxcar width variation and the integration time variation.

Phase III

For this phase of the experiment, a time trial was completed to determine exactly how long the QDI 1000 Microspectrophotometer's 75W Xenon lamp source needed to warm up before use. This was done by using the Kelly Green A_F slide. First, a spectrum was collected every minute for an hour. An integration time of 100 ms, an average scan of 20 and a boxcar width of 5 were used to collect every spectrum based on the results of that were obtained from the previous phase. A dark scan and a reference scan were collected before the first spectrum was gathered of the fibers. A spectrum was collected using wavelengths from 380 nm to 780 nm and absorbance from 0 to 1. These values were plotted into Microsoft® Excel for each different time setting in absorbance mode. Second, a dark scan, a reference scan and a sample spectrum of Kelly Green A_F was collected every minute for an hour. The same settings were used for this part of the experiment. For both parts of this phase, a certain wavelength was chosen and the number of minutes at which the absorbance values were collected was plotted.

Phase IV

During this phase of the study, 200 slides that represented the of fibers from the front, back, armpit and sleeve of each color repeated for all ten t-shirts was prepared to allow for the

intra-garment comparison. Each slide was placed on the stage of the CRAIC® QDI 1000 Microspectrophotometer. An integration time of 100 ms, an average scan of 20 and a boxcar width of 5 were used to collect every spectrum. A dark scan and a reference scan were collected before the spectrum was collected of the fibers. A spectrum for each sample was collected using wavelengths from 380 nm to 780 nm and absorbance from 0 to 1. Ten spectra were collected from a different part of the fiber for every slide that was prepared. The average absorbance, the standard deviation and the upper and lower confidence limits (UCL and LCL) were calculated at the 95% confidence level for each of the four sections of all 10 shirts of every color. The upper and lower confidences limits were calculated based on the equation below. 1.960 was chosen from the critical values for t- distribution, because the degree of freedom (n-1) was greater than 500. The program RandFriends® was used to generate a XY conditioning graph to display the absorbance values from the different sections of each shirt. An Add-Ins tab on the toolbar of Microsoft ® Excel was used to start the R® program and the R® Commander. The UCL and the LCL for front, back, sleeve and armpit of all five different colors were also calculated and the resulting data was graphed using Microsoft® Excel.

Upper Confidence Limit:

$$= A_{Average} + 1.960 \times StandardDeviation_{Average}$$

Lower Confidence Limit:

$$= A_{Average} - 1.960 \times StandardDeviation_{Average}$$

Equation 6: Calculating the Upper and Lower Confidence Bounds at 95% confidence

Phase V

In Phase V of this study, a fiber from the front section of every color t-shirt was cut into three different sections providing 150 slides to demonstration the inter-garment comparison. Each slide was placed on the stage of QDI 1000 Microspectrophotometer. An integration time of 100 ms, an average scan of 20 and a boxcar width of 5 were used to collect every spectrum. A

dark scan and a reference scan were collected before the spectrum was collected of the fibers. A spectrum for each sample was collected using wavelengths from 380 nm to 780 nm and absorbance from 0 to 1. Ten spectra were collected from a different part of the fiber for every slide that was prepared. The average absorbance, the standard deviation and the upper and lower confidence limits were calculated at the 95% confidence level for section 1, section 2 and section 3 for all ten shirts of every color. 1.960 was still used for the critical values for t- distribution and the program RandFriends® was used to generate a XY conditioning graph to display the absorbance values from the different sections of each shirt. An Add-Ins tab on the toolbar of Microsoft ® Excel was used to start the R® program and the R® Commander. The UCL and the LCL for section 1, 2 and 3 of all five different colors were also calculated and the resulting data was graphed using Microsoft® Excel.

Results

Phase 1

For the preliminary determination if there was any differentiation between the Munsell chips and their respective color t-shirt squares, the maximum and minimum absorbance were recorded, as well as the wavelength which these minimums and maximums occurred for each of the spectra. Also, the absorbance values for the Munsell chips for each color were also plotted against the average absorbance values of all ten of the t-shirt squares using a wavelength from 400 nm to 700 nm. Furthermore, the absorbance spectra that were collected for each of the Munsell chips and the t-shirt squares and the wavelength and absorbance values are displayed in Appendix A.

Gold

Photograph 5: Gold 10YR 7, 14 Munsell Chip

Photograph 6: Gold A_A square

	Wavelength (nm)	Minimum Abs	Wavelength (nm)	Maximum Abs
Gold 10 YR 7,14	620	0.00	400.21	0.889
Gold A	625	-0.118	440.08	0.882
Gold B	660	-0.001	441.91	0.997
Gold C	646	-0.017	443.16	1.125
Gold D	646	-0.003	430.5	1.046
Gold E	658	-0.007	424.95	1.216
Gold F	661	-0.001	400.21	1.127
Gold G	662	-0.014	400.21	1.161
Gold H	661	-0.014	400.21	1.161
Gold I	642	-0.031	400.21	1.154
Gold J	649	-0.003	400.21	1.273

Table 7: Minimum and Maximum wavelength and absorbance values for Gold

Photograph 5 and Photograph 6 show a side by side comparison of the Gold 10YR 7, 14 Munsell chip that was chosen out of the *Munsell Book of Color* and the first gold armpit t-shirt square. This view shows how closely the fibers from the t-shirt square were able to be matched to the chips. Table 7 depicts the minimum and maximum absorbance values that were recorded at their respective wavelength values for the Munsell chip and the gold t-shirt squares. The average absorbance was calculated for the front, back, sleeve and armpit. Those values were used to represent Gold A through Gold J in the table.

Figure 17: Gold 10YR 7, 14 vs. the Gold squares

In Figure 17, the average absorbance values for Gold A through Gold J were plotted against the absorbance values that were recorded for the Munsell chip. The wavelength and absorbance values that are collected by the instrument and are shown in the graph were collected from 400 nm to 700 nm incrementally every .37 nm. A linear backline correction was used to eliminate the negative absorbance values that were recorded by taking the lowest value and adding it to all the other absorbance values.

Kelly Green

Photograph 7: Kelly Green 7.5G 4, 8 Munsell Chip

Photograph 8: Kelly Green A_A square

	Wavelength (nm)	Minimum Abs	Wavelength (nm)	Maximum Abs
Kelly Green 7.5G 4,8	506	0.166	718.19	0.889
Kelly Green A	507	0.005	677.42	1.280
Kelly Green B	511	0.099	682.65	1.400
Kelly Green C	508	0.073	679.46	1.301
Kelly Green D	510	0.012	686.24	1.302
Kelly Green E	508	0.050	680.82	1.221
Kelly Green F	517	0.159	687.93	1.401
Kelly Green G	513	0.079	683.19	1.302
Kelly Green H	509	0.040	678.10	1.260
Kelly Green I	510	0.089	688.61	1.304
Kelly Green J	509	0.099	683.19	1.318

Table 8: Minimum and Maximum absorbance and wavelength values for Kelly Green

Photograph 7 and Photograph 8 show a side by side comparison of the Kelly Green 7.5 4, 8 Munsell chip that was chosen out of the *Munsell Book of Color* and the first kelly green armpit t-shirt square. This view shows how closely the fibers from the t-shirt square were able to be matched to the chips. Table 8 depicts the minimum and maximum absorbance values that were recorded at their respective wavelength values for the Munsell chip and the kelly green t-shirt squares. The average absorbance was calculated for the front, back, sleeve and armpit. Those values were used to represent Kelly Green A through Kelly Green J in the table.

Figure 18: Kelly Green 7.5G 4, 8 vs. the Kelly Green squares

In Figure 18, the average absorbance values for Kelly Green A through Kelly Green J were plotted against the absorbance values that were recorded for the Munsell chip. The wavelength and absorbance values that are collected by the instrument and are shown in the graph were collected from 400 nm to 700 nm incrementally every .37 nm.

Orange

Photograph 9: Orange 2.5 YR 6, 14 Munsell Chip

Photograph 10: Orange A_A square

	Wavelength (nm)	Minimum Abs	Wavelength (nm)	Maximum Abs
Orange 2.5YR 6,14	580	0.00	487	0.7401
Orange A	598	-0.163	512	0.922
Orange B	598	-0.169	508	1.000
Orange C	598	-0.168	506	1.085
Orange D	597	-0.170	504	1.080
Orange E	597	-0.168	514	1.001
Orange F	599	-0.166	532	1.006
Orange G	596	-0.169	511	1.050
Orange H	589	-0.141	509	0.960
Orange I	584	-0.237	503	1.170
Orange J	588	-0.295	527	0.800

Table 9: Minimum and Maximum absorbance and wavelength values for Orange

Photograph 9 and Photograph 10 show a side by side comparison of the Orange 2.5YR 6, 14 Munsell chip that was chosen out of the *Munsell Book of Color* and the first orange armpit t-shirt square. This view shows how closely the fibers from the t-shirt square were able to be matched to the chips. Table 9 depicts the minimum and maximum absorbance values that were recorded at their respective wavelength values for the Munsell chip and the orange t-shirt squares. The average absorbance was calculated for the front, back, sleeve and armpit. Those values were used to represent Orange A through Orange J in the table.

Figure 19: Orange 2.5YR 6, 14 Munsell chip vs. the Orange squares

In Figure 19, the average absorbance values for Orange A through Orange J were plotted against the absorbance values that were recorded for the Munsell chip. The wavelength and absorbance values that are collected by the instrument and are shown in the graph were collected from 400 nm to 700 nm incrementally every .37 nm. A linear backline correction was used to eliminate the negative absorbance values that were recorded by taking the lowest value and adding it to all the other absorbance values.

Red

Photograph 11: Red 5R 4, 14

Photograph 12: Red A_A square

	Wavelength (nm)	Minimum Abs	Wavelength (nm)	Maximum Abs
Red 5R 4, 14	622	-0.118	545	0.875
Red A	626	-0.324	514	0.980
Red B	626	-0.331	520	0.937
Red C	624	-0.112	512	1.282
Red D	627	-0.320	512	0.986
Red E	626	-0.295	513	1.139
Red F	625	-0.287	514	0.975
Red G	626	-0.276	516	0.991
Red H	627	-0.304	518	1.011
Red I	624	-0.269	520	1.171
Red J	622	-0.282	519	1.020

Table 10: Minimum and Maximum absorbance and wavelength values for Red

Photograph 11 and Photograph 12 show a side by side comparison of the Red 5R 4, 14 Munsell chip that was chosen out of the *Munsell Book of Color* and the first red armpit t-shirt square. This view shows how closely the fibers from the t-shirt square were able to be matched to the chips. Table 10 depicts the minimum and maximum absorbance values that were recorded at their respective wavelength values for the Munsell chip and the red t-shirt squares. The average absorbance was calculated for the front, back, sleeve and armpit. Those values were used to represent Red A through Red J in the table.

Figure 20: Red 5R 6, 14 Munsell chip vs. the Red squares

In Figure 20, the average absorbance values for Red A through Red J were plotted against the absorbance values that were recorded for the Munsell chip. The wavelength and absorbance values that are collected by the instrument and are shown in the graph were collected from 400 nm to 700 nm incrementally every .37 nm. A linear backline correction was used to eliminate the negative absorbance values that were recorded by taking the lowest value and adding it to all the other absorbance values.

Royal

Photograph 13: Royal 5PB 4, 12

Photograph 14: Royal A_A square

	Wavelength (nm)	Minimum Abs	Wavelength (nm)	Maximum Abs
Royal 5PB 4, 12	459	-0.141	612	0.828
Royal A	450	-0.331	612	0.704
Royal B	446	-0.320	610	0.699
Royal C	446	-0.268	609	0.804
Royal D	447	-0.314	609	0.747
Royal E	445	-0.289	612	0.748
Royal F	477	-0.301	612	0.755
Royal G	446	-0.330	627	0.642
Royal H	448	-0.293	612	0.731
Royal I	445	-0.219	613	0.951
Royal J	446	-0.295	611	0.735

Table 11: Minimum and Maximum wavelength and absorbance values for Royal

Photograph 13 and Photograph 14 show a side by side comparison of the Royal 5 PB 4, 12 Munsell chip that was chosen out of the *Munsell Book of Color* and the first royal armpit t-shirt square. This view shows how closely the fibers from the t-shirt square were able to be matched to the chips. Table 11 depicts the minimum and maximum absorbance values that were recorded at their respective wavelength values for the Munsell chip and the royal t-shirt squares. The average absorbance was calculated for the front, back, sleeve and armpit. Those values were used to represent Royal A through Royal J in the table.

Figure 21: Royal 5PB 4, 12 Munsell chip vs. the Royal squares

In Figure 21, the average absorbance values for Royal A through Royal J were plotted against the absorbance values that were recorded for the Munsell chip. The wavelength and absorbance values that are collected by the instrument and are shown in the graph were collected from 400 nm to 700 nm incrementally every .37 nm.

Phase II

Average Scans

To better determine the scans to average when collecting spectra using the Ocean Optics® software when coupled with the QDI 1000 Microspectrophotometer, spectra were collected from 400 nm to 700 nm incrementally every .37 nm using average scans of 2, 5, 10, 15, 20, 30, 50 and 100, which can be seen in Figure 22 and Figure 23. The absorbance values that were recorded into Microsoft® Excel along with the spectra that were collected can be viewed in Appendix A.

Figure 22: Average scan variation of Kelly Green A_F

Figure 23: Average scan variation of Kelly Green A_F using scans 10, 15 and 20

Figure 24 show the results the new absorbance values that were calculated for the average scan variation data when the least squares method was used. These values are plotted at their respective wavelength values from 400 nm to 700 nm. Figure 25 displays the sum of the squared values that were calculated for the different average scan values that were chosen.

Figure 24: Least squared absorbance values for each average scan variation

Figure 25: The sum of the squares values for each scan variation

Boxcar Width

To better determine the boxcar width when collecting spectra using the Ocean Optics® software when coupled with the QDI 1000 Microspectrophotometer, spectra were collected from 400 nm to 700 nm incrementally every .37 nm using a boxcar width of 1, 3, 5, 7, 9, 11, 15, 25, 50, 100 and 150, which can be seen in Figure 26 and Figure 27. The absorbance values that were recorded into Microsoft® Excel along with the spectra that were collected can be viewed in Appendix A.

Figure 26: Boxcar width variation of Kelly Green A_F

Figure 27: Boxcar width variation of Kelly Green A_F using boxcar width of 1, 3 and 5

Figure 28 show the results the new absorbance values that were calculated for the boxcar width variation data when the least squares method was used. These values are plotted at their respective wavelength values from 400 nm to 700 nm. Figure 29 displays the sum of the squares values that were calculated for the different boxcar width values that were chosen.

Figure 28: Least squared absorbance values for each boxcar width variation

Figure 29: The sum of the squares for each boxcar width variation

Integration Time

To better determine the integration time when collecting spectra using the Ocean Optics® software when coupled with the QDI 1000 Microspectrophotometer, spectra were collected from 400 nm to 700 nm incrementally every .37 nm using integration times of 10 ms, 20 ms, 30 ms, 50 ms, 100 ms, 200 ms, 300 ms, 500 ms and 1000 ms, which can be seen in Figure 30 and Figure 31. The absorbance values that were recorded into Microsoft® Excel along with the spectra that were collected can be viewed in Appendix A.

Figure 30: Integration time variation of Kelly Green A_F

Figure 31: Integration time variation of Kelly Green A_F using times of 20, 30, 50 and 100

Figure 32 show the results the new absorbance values that were calculated for the integration time variation data when the least squares method was used. These values are plotted at their respective wavelength values from 400 nm to 700 nm. Figure 33 displays the sum of the squared values that were calculated for the different integration time values that were chosen.

Figure 32: Least squared absorbance values for each integration time variation

Figure 33: The sum of the squares for each integration time variation

Phase III

Time Trial Part 1

To determine the proper warm-up time for the QDI 1000 Microspectrophotometer's 75 W Xenon lamp, a time trial was performed during this phase. A sample spectrum was collected of Kelly Green A_F every minute for an hour using a wavelength from 380 nm to 700 nm. The absorbance values were recorded incrementally every .37 nm. The absorbance values that were recorded at 425 nm, 520 nm, 625 nm, 675 nm and 700 nm were plotted against the time in which they were collected, which are displayed in Figures 34-39.

Figure 34: Absorbance values over time of Kelly Green A_F at 425 nm

Figure 35: Absorbance values over time of Kelly Green A_F at 520 nm

Figure 36: Absorbance values over time of Kelly Green A_F at 625 nm

Figure 37: Absorbance values over time of Kelly Green A_F at 675 nm

Figure 38: Absorbance values over time of Kelly Green A_F at 700 nm

Figure 39: Absorbance values of Kelly Green A_F every ten minutes

Time Trial Part II

In this part of the time trial, a reference scan and a dark scan were collected before the sample spectrum was collected of Kelly Green A_F every minute for an hour using a wavelength from 380 nm to 700 nm. The absorbance values were recorded incrementally every .37 nm. The absorbance values that were recorded at 425 nm, 520 nm, 625 nm, 675 nm and 700 nm were plotted against the time in which they were collected, which are displayed in Figures 40-45.

Figure 40: Absorbance values over time of Kelly Green A_F at 425 nm

Figure 41: Absorbance values over time of Kelly Green A_F at 520 nm

Figure 42: Absorbance values over time of Kelly Green A_F at 625 nm

Figure 43: Absorbance values over time of Kelly Green A_F at 675 nm

Figure 44: Absorbance values over time of Kelly Green A_F at 700 nm

Figure 45: Absorbance values of Kelly Green A_F every ten minutes

Phase IV

Gold

Figure 46: Spectra the Gold A-J shirts for arm pit, back, front and sleeve of all ten runs

Figure 47: Spectra of the armpit, back, front and sleeve for Gold A-J shirts

Figure 48: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Gold A shirts

Figure 49: Spectra of the Average Absorbance, UCL and the LCL for all 4 regions of the Gold B shirts

Figure 50: Spectra of the Average Absorbance, UCL and the LCL for every Gold Shirt

Figure 51: The 95% UCL and the 95% LCL for the Gold Front and Back

Figure 52: The 95% UCL and the 95% LCL for the Gold Front and Sleeve

Figure 53: The 95% UCL and the 95% LCL for the Gold Front and Armpit

Figure 54: The 95% UCL and the 95% LCL for the Gold Back and Sleeve

Figure 55: The 95% UCL and the 95% LCL for the Gold Back and Armpit

Figure 56: The 95% UCL and the 95% LCL for the Gold Armpit and Sleeve

Figure 57: Spectra the Kelly Green A-J shirts for armpit, back, front and sleeve of all ten runs

Figure 58: Spectra of the armpit, back, front and sleeve for Kelly Green A-J shirts

Figure 59: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Kelly Green C shirts

Figure 60: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Kelly Green D shirts

Figure 61: Spectra of the Average Absorbance, UCL and the LCL for every Kelly Green Shirt

Figure 62: The 95% UCL and the 95% LCL for the Kelly Green Front and Back

Figure 63: The 95% UCL and the 95% LCL for the Kelly Green Front and Sleeve

Figure 64: The 95% UCL and the 95% LCL for the Kelly Green Front and Armpit

Figure 65: The 95% UCL and the 95% LCL for the Kelly Green Back and Sleeve

Figure 66: The 95% UCL and the 95% LCL for the Kelly Green Back and Armpit

Figure 67: The 95% UCL and the 95% LCL for the Kelly Green Sleeve and Armpit

Orange

Figure 68: Spectra the Orange A-J shirts for armpit, back, front and sleeve of all ten runs

Figure 69: Spectra of the armpit, back, front and sleeve for Orange A-J shirts

Figure 70: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Orange E Shirts

Figure 71: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Orange F Shirts

Figure 72: Spectra of the Average Absorbance, UCL and the LCL for every Orange Shirt

Figure 73: The 95% UCL and the 95% LCL for the Orange Front and Back

Figure 74: The 95% UCL and the 95% LCL for the Orange Front and Sleeve

Figure 75: The 95% UCL and the 95% LCL for the Orange Front and Armpit

Figure 76: The 95% UCL and the 95% LCL for the Orange Back and Sleeve

Figure 77: The 95% UCL and the 95% LCL for the Orange Back and Armpit

Figure 78: The 95% UCL and the 95% LCL for the Orange Sleeve and Armpit

Red

Figure 79: Spectra the Red A-J shirts for armpit, back, front and sleeve of all ten runs

Figure 80: Spectra of the armpit, back, front and sleeve for Red A-J shirts

Figure 81: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Red G shirts

Figure 82: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Red H shirts

Figure 83: Spectra of the Average Absorbance, UCL and the LCL for every Red Shirt

Figure 84: The 95% UCL and the 95% LCL for the Red Front and Back

Figure 85: The 95% UCL and the 95% LCL for the Red Front and Sleeve

Figure 86: The 95% UCL and the 95% LCL for the Red Front and Armpit

Figure 87: The 95% UCL and the 95% LCL for the Red Back and Sleeve

Figure 88: The 95% UCL and the 95% LCL for the Red Back and Armpit

Figure 89: The 95% UCL and the 95% LCL for the Red Sleeve and Armpit

Figure 90: Spectra the Royal A-J shirts for armpit, back, front and sleeve of all ten runs

Figure 91: Spectra of the armpit, back, front and sleeve for Royal A-J shirts

Figure 92: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Royal I shirts

Figure 93: Spectra of the Average Absorbance, UCL and the LCL for 4 all regions of the Royal

Figure 94: Spectra of the Average Absorbance, UCL and the LCL for every Royal Shirt

Figure 95: The 95% UCL and the 95% LCL for the Royal Front and Back

Figure 96: The 95% UCL and the 95% LCL for the Royal Front and Sleeve

Figure 97: The 95% UCL and the 95% LCL for the Royal Front and Armpit

Figure 98: The 95% UCL and the 95% LCL for the Royal Back and Sleeve

Figure 99: The 95% UCL and the 95% LCL for the Royal Back and Armpit

Figure 100: The 95% UCL and the 95% LCL for the Royal Sleeve and Armpit

All the figures in the results section of Phase IV were generated by a XY conditioning plot using RandFriends® 2.15.2 when configured with RExcel® 3.2.9. Figures 46, 57, 68, 79 and 90 were created for the front, back, sleeve and armpit of all five t-shirt colors by using wavelength for the x axis and the absorbance values as the y axis that were collected for all ten runs. The number of columns was set to four and the number of rows was set to ten. Figures 47, 58, 69, 80 and 91 were created for the front, back, sleeve and armpit of all five t-shirt colors by using the x axis as wavelength and the y axis as the average absorbance values that were calculated. The number of rows was set to ten. Figure 48 and Figure 49 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for the Gold A t-shirt and the Gold B t-shirt. Figure 59 and Figure 60 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for Kelly Green C t-shirt and Kelly Green D t-shirt. Figure 70 and Figure 71 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for Orange E t-shirt and Orange F t-shirt. Figure 81 and Figure 82 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for Red G t-shirt and Red H t-shirt. Figure 93 and Figure 94 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for Royal I t-shirt and Royal J t-shirt. Figures 50, 61, 72, 83 and 94 were created to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for all ten shirts for all five colors. Figure 51-56, Figure 62-67, Figure 73-78, Figure 84-89 and Figure 95-100 were created in Microsoft® Excel to displays all possible ways to compare the front, back, sleeve and armpit of the five different colors by plotting the UCL and the LCL at 95% confidence.

Phase V

Gold

Figure 101: Spectra the Gold A-J shirts for section 1, 2 and 3 of all ten runs

Figure 102: Spectra of section 1, 2 and 3 for Gold A-J shirts

Figure 103: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Gold I shirts

Figure 104: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Gold J shirts

Figure 105: Spectra of the Average Absorbance, UCL and the LCL for every front Gold Shirt

Figure 106: The 95% UCL and the 95% LCL of Gold Section 1 and Section 2

Figure 107: The 95% UCL and the 95% LCL of Gold Section 1 and Section 3

Figure 108: The 95% UCL and the 95% LCL of Gold Section 2 and Section 3

Figure 109: Spectra the Kelly Green A-J shirts for section 1, 2 and 3 of all ten runs

Figure 110: Spectra of section 1, 2 and 3 for Kelly Green A-J shirts

Figure 111: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Kelly Green G shirts

Figure 112: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Kelly Green H shirts

Figure 113: Spectra of the Average Absorbance, UCL and the LCL for every front Kelly Green Shirt

Figure 114: The 95% UCL and the 95% LCL of Kelly Green Section 1 and Section 2

Figure 115: The 95% UCL and the 95% LCL of Kelly Green Section 1 and Section 3

Figure 116: The 95% UCL and the 95% LCL of Kelly Green Section 2 and Section 3

Orange

Figure 117: Spectra the Orange A-J shirts for section 1, 2 and 3 of all ten runs

Figure 118: Spectra of section 1, 2 and 3 for Orange A-J shirts

Figure 119: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Orange E shirts

Figure 120: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Orange F shirts

Figure 121: Spectra of the Average Absorbance, UCL and the LCL for every front Orange Shirt

Figure 122: The 95% UCL and the 95% LCL of Orange Section 1 and Section 2

Figure 123: The 95% UCL and the 95% LCL of Orange Section 1 and Section 3

Figure 124: The 95% UCL and the 95% LCL of Orange Section 2 and Section 3

Red

Figure 125: Spectra of the Red A-J shirts for section 1, 2 and 3 of all ten runs

Figure 126: Spectra of section 1, 2 and 3 for Red A-J shirts

Figure 127: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Red C shirts

Figure 128: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Red D shirts

Figure 129: Spectra of the Average Absorbance, UCL and the LCL for every front Red Shirt

Figure 130: The 95% UCL and the 95% LCL of Red Section 1 and Section 2

Figure 131: The 95% UCL and the 95% LCL of Red Section 1 and Section 3

Figure 132: The 95% UCL and the 95% LCL of Red Section 2 and Section 3

Royal

Figure 133: Spectra of the Royal A-J shirts for section 1, 2 and 3 of all ten runs

Figure 134: Spectra of section 1, 2 and 3 for Royal A-J shirts

Figure 135: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Royal A shirts

Figure 136: Spectra of the Average Absorbance, UCL and the LCL for 3 all sections of the Royal B shirts

Figure 137: Spectra of the Average Absorbance, UCL and the LCL for every front Royal Shirt

Figure 138: The 95% UCL and the 95% LCL of Royal Section 1 and Section 2

Figure 139: The 95% UCL and the 95% LCL of Royal Section 1 and Section 3

Figure 140: The 95% UCL and the 95% LCL of Royal Section 2 and Section 3

All the figures in the results section of Phase IV were generated by a XY conditioning plot using RandFriends® 2.15.2 when configured with RExcel® 3.2.9. Figures 101, 109, 117, 125 and 133 were created for Section 1, 2 and 3 of all five t-shirt colors by using the x axis as wavelength and the y axis as the absorbance values that were collected for all ten runs. The number of columns was set to 4 and the number of rows was set to 10. Figures 102, 110, 118, 126 and 134 were created for a Section 1, 2 and 3 of all five t-shirt colors by using the x axis as wavelength and the y axis as the average absorbance values that were calculated. The number of rows set to 10. Figure 103 and Figure 104 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for front of the Gold I t-shirt and Gold J t-shirt. Figure 111 and Figure 112 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for front of the Kelly Green G t-shirt and Kelly Green H t-shirt. Figure 119 and Figure 120 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for front of the Orange E t-shirt and Orange F t-shirt. Figure 127 and Figure 128 were generated to represent the average absorbance,

the upper confidence limit and the lower confidence limit for all the absorbance values for front of the Red C t-shirt and Red D t-shirt. Figure 135 and Figure 136 were generated to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for front of the Royal A t-shirt and Royal B t-shirt. Figures 105, 113, 121, 139 and 137 were created to represent the average absorbance, the upper confidence limit and the lower confidence limit for all the absorbance values for the front of all ten shirts for all five colors.

Figure 141: The 95% UCL and the 95% LCL at of all Orange and Kelly Green Shirts

Figure 142: The 95% UCL and the 95% LCL of all Orange and Red Shirts

Figure 143: The 95% UCL and the 95% LCL of all Orange and Gold Shirts

Figure 144: The 95% UCL and the 95% LCL of all Orange and Royal Shirts

Figure 145: The 95% UCL and the 95% LCL of all Kelly Green and Red Shirts

Figure146: The 95% UCL and the 95% LCL of all Kelly Green and Gold Shirts

Figure147: The 95% UCL and the 95% LCL of all Kelly Green and Royal Shirts

Figure148: The 95% UCL and the 95% LCL of all Red and Gold Shirts

Figure149: The 95% UCL and the 95% LCL of all Red and Royal Shirts

Figure150: The 95% UCL and the 95% LCL of all Royal and Gold Shirts

Figures 141-150 represent the ten possible 95% UCL and the 95% LCL comparisons that can be done between all Gold, Kelly Green, Orange, Red and Royal shirts.

IV: Discussion

Phase I

Gold

Table 7 shows the minimum and maximum wavelength values and their respective absorbance values for Gold A-Gold J and the Munsell chip that was chosen. When looking at the minimum wavelength values, every value falls outside the range that one would expect to observe for the color yellow or gold, which in the visible light spectrum is from 570 nm to 585 nm. These minimum wavelength values fall from 620 nm to 662 nm, which is in the red region of the visible light spectrum. The maximum wavelength values that are shown in Table 7 all fall into the violet range (400 nm to 420 nm) and the indigo range (420 nm to 440 nm) except for the

t-shirt square Gold B and the t-shirt square Gold C, which fell just outside the range. Violet is the complementary color to yellow, so one would expect the maximum wavelength values to be in the violet and indigo range of the visible light spectrum.

Kelly Green

Table 8 shows the minimum and maximum wavelength values and their respective absorbance values for Kelly Green A-Kelly Green J and the Munsell chip that was chosen. When looking at the results in this table, the minimum wavelength values are within the range of the color green in the visible light spectrum for both the Munsell chip and the t-shirt squares, which is from 490 nm to 570 nm. The maximum wavelength values that were recorded are within the red range of the visible light spectrum. Being that red is the complementary color to green these values would be expected to be within that range. There was a large differentiation observed in the maximum wavelength value of the Munsell chip 7.5G 4, 8 and that of the t-shirt squares, but the maximum wavelength value of 718 nm that was recorded is still in the red range of the visible light spectrum.

Orange

Table 9 shows the minimum and maximum wavelength values and their respective absorbance values for Orange A-Orange J and the Munsell chip that was chosen. When looking at the results in this table, the minimum wavelength values for all ten t-shirt squares are in the orange region of the visible light spectrum, which is from 585 nm to 620 nm, but the Munsell chip was not. The Munsell chip instead fell into the yellow region of the visible light spectrum with a minimum wavelength value of 580 nm. Blue is the complementary color to orange, so it expected that the maximum wavelength values of t-shirt squares would fall into that range of 440 nm to 490 nm in the visible light spectrum because all the minimum wavelength values that were recorded are in the orange region. However, as shown in Table 9 the values fall into the green range of the visible light spectrum (490 nm to 570 nm) instead.

Red

Table 10 shows the minimum and maximum wavelength values and their respective absorbance values for Red A-Red J and the Munsell chip that was chosen. When looking at the

results in this table, the wavelength values for the t-shirt squares and the Munsell chip are in the red region of the visible light spectrum, which is from 620 nm to 780 nm. There was no more than a 5 nm difference between them. The maximum wavelength values that were recorded are within the green range of the visible light spectrum. One would expect these values to fall in this region being that green is the complementary color to red. There was a variation observed between the maximum wavelength value of the Munsell chip 5R 4, 14 and the ten t-shirt squares, but the value of 545 nm that was recorded is still the green range of the visible light spectrum.

Royal

Table 11 shows the minimum and maximum wavelength values and their respective absorbance values for Royal A-Royal J and the Munsell chip that was chosen. When looking at the results in this table, the minimum wavelength values for the t-shirt squares and the Munsell chip are in the blue region of the visible light spectrum, which is from 440 nm to 490 nm. The maximum wavelength values that were recorded fall within orange range of the visible light spectrum. Being that orange is the complementary color to blue is it expected that these values to fall in this region. There was a variation observed in the maximum wavelength value that was recorded for Royal G and the maximum values that were recorded for all the other t-shirt squares and the Munsell chip. The maximum value that was recorded for Royal G was 627 nm is higher than all the other maximum values, but is still in the orange range in the visible light spectrum.

It can be noticed in the figures where the spectrum of the Munsell chip for each color and the ten t-shirts for every color are displayed that the spectra that was recorded for the Munsell Chip are different from the spectra of the t-shirts squares. This variation could be due to the cardboard surface that the Munsell chips are placed on in the Munsell Book of Color. A linear baseline correction was completed to get rid of the negative absorbance values that were recorded for gold, orange, red and royal. The negative absorbance values recorded can be explained due to the instrumental variations that can occur. Being that the CRAIC® QDS QDI™ II was properly calibrated with the NIST® Traceable standards these negative absorbance values were corrected using the linear baseline correction method.

Phase II

The absorbance measurements that are recorded in this phase of the experiment are subject to “noise” which can affect the reproducibility of the measurements, which is also known as the precision. When collecting spectra using the QDI 1000 Microspectrophotometer, it is important to have a good signal to noise ratio. The software that is used to collect and display the spectra can help to obtain a better signal to noise ratio. The software allows the user to change and set three different settings; the average scans, the boxcar width and the integration time. To further analysis the best average scans, the boxcar width and the integration times when collecting spectra on the QDI 1000 Microspectrophotometer the least squares model was used because it can help to minimize the sum of the squares of the errors that may have occurred in the experiment. This method was done by computing the sum of the squares (SSR) and then minimizing the SSR by adjusting k by using the solver add in on Microsoft® Excel. If the model is used correctly and the noise is not too high, a set of coefficients can be found that closely fit the data.

Average Scans

When there is a higher number of average scans, the better the signal to noise ratio will be. The number of average scans is the number of spectral acquisitions that accumulate before the software receives the scan. In Figure 23, the absorbance spectra are displayed that were collected from varying the average scans of 10, 15 and 20 from 400 nm to 700 nm. The spectrum that was obtained when the average scans were set to 20 displays less noise than when the average scan was set to 10 and 15. The results obtained when the least squares method was applied to the absorbance values when varying the average scan values are displayed in Figure 24 and Figure 25. The absorbance values that were obtained when the least squares calculation was applied to the average scans are displayed in Figure 24. By using this method to minimize the absorbance values so that they are as close to zero as possible, it was determined that the average scans of 2, 10, 15 and 30 presented the highest variability in the absorbance values. This variation was observed between the wavelengths of 400 nm to 450 nm and 650 nm to 700 nm. It was concluded that average scans of 5, 20 and 50 displayed the most minimal absorbance values

when this method was applied. For further analysis the sum of the squares of each average scan variation are displayed in Figure 25. The average scans of 5, 20 and 50 displayed the lowest sum of the squares values when using this method as well. The sum of the squares for the average scan of 5 was 0.212, the sum of the squares for the average scan 20 was 0.228 and the sum of the squares for the average scan 50 was 0.116. The assumption had already been made that the higher the average scans, the better the signal to noise ratio. With this being said, it was determined that the average scan of 5 would not be appropriate average scan value to use when collecting spectra. To determine if the average scan value of 20 or 50 should be used, the spectra that were collected from the QDI 1000 Microspectrophotometer were analyzed. The boxcar width was kept constant at 5 and the integration time was kept constant at 100 ms when collecting the spectra.

Figure151: Absorbance spectrum of Kelly Green A_F using average scan of 5

Figure 152: Absorbance spectrum of Kelly Green A_F using average scan of 20

Figure 153: Absorbance spectrum of Kelly Green A_F using average scan of 50

The absorbance spectrum that was collected when the average scan was set to 20 is displayed in Figure 107 and the absorbance spectrum that was collected when the average scan was set to 50 is displayed in Figure 108. It was determined that when collecting spectra using the QDI 1000 Microspectrophotometer, an average scan value of 20 should be used when collecting spectra.

Boxcar Width

The boxcar width parameter in the Ocean Optics® software is used as a smoothing tool for the spectrum that are collected to help improve the signal to noise ratio. If the boxcar width is set to high, the spectrum will lose information, the signal to noise ratio will be effected and a loss of spectral resolution will be observed. In Figure 27, the absorbance spectra are displayed that were collected from varying the boxcar width of 1, 3 and 5 from 400 nm to 700 nm. The spectrum that was obtained when the average scans were set to 5 displays less noise than when the average scan was set to 1 and 3. The results obtained when the least squares method was applied to the absorbance values when varying the boxcar width values are displayed in Figure 28 and Figure 29. The absorbance values that were obtained when the least squares calculation was applied to the boxcar width are displayed in Figure 28. By using this method is to minimize the absorbance values so that they are as close to zero as possible, it was determined that the boxcar width of 1 and 3 of presented the highest variability in the absorbance values. It was concluded that the boxcar width of 5, 9, 25 and 50 displayed the most minimal absorbance values when the sum of the squares method was applied in Figure 29. The sum for boxcar width 5 was 18.68, the sum for boxcar width 9 was 16.71, the sum for boxcar width of 25 was 15.80 and the sum for boxcar width 50 was 4.44. The assumption had already been made that if the boxcar width was set too high, a loss of spectral resolution will be observed. It was concluded that even though a boxcar width of 50 has the lowest sum of squares value, it would not be an ideal boxcar width to use when collecting spectra. It was determined that the boxcar width of 5 should be used when collecting spectra by analyzing the spectra that were collected from the QDI 1000 Microspectrophotometer, which are shown in Figure 109-111. The average scans were kept constant at 20 based on the results of the previous section and the integration time was kept constant at 100 ms when collecting the spectra.

Figure 154: Absorbance spectrum of Kelly Green A_F using boxcar width of 5

Figure 155: Absorbance spectrum of Kelly Green A_F using boxcar width of 25

Figure 156: Absorbance spectrum of Kelly Green A_F using boxcar width of 50

Integration Time

When the integration time is set to a high value, the better the signal to noise ratio will be. A higher integration time means that the detector is monitoring for a longer period of time. In Figure 31, the absorbance spectra are displayed that were collected from varying the integration times of 20 ms, 30 ms, 50 ms and 100 ms from 400 nm to 700 nm. The spectrum that was obtained when the integration time was set to 100 ms displayed less noise than when the integration time was set to 10 ms and 15 ms. The results obtained when the least squares method was applied to the absorbance values when varying the average scan values are displayed in Figure 32 and Figure 33. The absorbance values that were obtained when the least squares calculation was applied to the integration time are displayed in Figure 32. By using this method is to minimize the absorbance values so that they are as close to zero as possible, it was

determined that the integration time of 10ms, 30 ms, 50 ms, 200 ms, 300 ms and 500 ms presented the highest variability in the absorbance values. It was concluded that integration time of 20 ms and 100 ms displayed the most minimal absorbance values when this method was applied. For further analysis, the sums of the squares of each average scan variation are displayed in Figure 33. The integration time of 20 ms and 100 ms displayed the lowest sum of the squares values when using this method as well. The sum of the squares for the integration time of 20 ms was 0.096 the sum of the squares for the average scan 100 ms was 4.99. The assumption had already been made that the higher the integration time, the better the signal to noise ratio. With this being said, it was determined that the integration time of 20 ms would not be appropriate integration time value to use when collecting spectra even though it had a lesser sum of the squares value. An integration time of 100 ms would instead be the appropriate setting to use when collecting spectra. The spectra that were collected from the QDI 1000 Microspectrophotometer are shown in Figure 112 and Figure 113. With the results of the previous sections, the boxcar width was kept constant at 5 and the average scans were kept constant at 20 when collecting the spectra.

Figure 157: Absorbance spectrum of Kelly Green A_F using integration time of 20 ms

Figure 158: Absorbance spectrum of Kelly Green A_F using integration time of 100 ms

Phase III

For this phase of the experiment, a time trial was completed to determine exactly how long the QDI 1000 Microspectrophotometer's 75W Xenon lamp source needed to warm up before use to obtain the best possible spectra. To help reduce the amount of noise in a spectrum, the parameters of average scans, boxcar width and integration time were determined in the previous phase, but it is also important to determine how much time the Xenon lamp and the detector needs to warm up to reach a constant operating temperature. A temperature change is another setting that can also affect the noise that may be present when a spectrum is being collected.

Part 1

In Part 1 of the phase, a sample spectrum was collected of Kelly Green A_F every minute for an hour using a wavelength from 380 nm to 700 nm. A dark and reference scan was only collected before the first sample spectrum was collected. Figure 34 through Figure 38 displays the absorbance values that were obtained when certain wavelengths in the UV and Visible region were chosen. For every wavelength that was chosen (425 nm, 520 nm, 575 nm, 620 nm and 700 nm) after three minutes, there was little variation between the absorbance values that were recorded. At 425 nm, the absorbance values after three minutes were between 0.347 and 0.394. At 520 nm, the absorbance values after three minutes were between 0.172 and 0.203. At 625 nm, the absorbance values after three minutes were between 0.579 and 0.597. At 675 nm, the absorbance values after three minutes were between 0.705 and 0.766. At 700 nm, the absorbance values after three minutes were between 0.495 and 0.541. In Figure 39, the absorbance spectra were plotted every ten minutes starting at one minute. The spectra that were collected after ten minutes had little differentiation between them. From these results, it can be conclude that the warm up time for the instrument is not as significant and influential on the spectra that were collected when only collecting a dark and reference scan before the first sample spectrum was collected. For this reason, part two of the phase was done to see the dark scan and reference scan affected the spectra over the span of an hour.

Figure 159: Absorbance spectrum of Kelly Green A_F after 5 minutes

Figure 160: Absorbance spectrum of Kelly Green A_F after 30 minutes

Figure 161: Absorbance spectrum of Kelly Green A_F after 40 minutes

Part II

In Part 11 of Phase III, a dark scan, a reference scan and a sample spectrum of Kelly Green A_F was collected every minute for an hour using a wavelength from 380 nm to 700 nm. Figure 40 through Figure 44 displays the absorbance values that were obtained when certain wavelengths in the UV and Visible region were chosen. At every wavelength that was chosen, the maximum absorbance value was seen after 24 minutes of collecting the dark scan, reference scan and a sample spectrum. The lowest absorbance value was recorded at 52 minutes after collecting a dark scan, a reference scan and a sample spectrum at 425 nm, 520 nm, 625 nm and 700 nm. At 627 nm, the minimum absorbance value was seen at 42 minutes. In Figure 45, the absorbance spectra were plotted every ten minutes starting at one minute. In this figure, the sample spectrum that was collected after 30 minutes presented the highest absorbance value of 0.709 around 680 nm. After 50 minutes, the absorbance values decreased to 0.559 around 680 nm. At 10 minutes, the minimum absorbance value of 0.147 was observed around 515 nm. At 20

minutes, the minimum absorbance value of 0.057 was observed around 500 nm. After 30 minutes the minimum absorbance value was recorded at 524 nm and after 40 minutes the minimum absorbance value was recorded at 525 nm. Even after 50 minutes the minimum absorbance value was recorded at 522 nm. It can be concluded from the spectra that were collected before 20 minutes that the wavelengths where the minimum absorbance values occurred show a higher variability. From the spectra that was collected at 30 minutes, 40 minutes and 50 minutes, it can be concluded that when collecting a dark scan, a reference scan and a sample spectrum there is little variation in the wavelengths where the minimum absorbance values occurred. The results of this part of Phase III demonstrate that the warm up time for the instrument is influential on the spectra that were collected when a dark scan and a reference scan were collected before the every sample spectrum was collected. The results also support the manual that was provided for the CRAIC® QDI 1000 Microspectrophotometer that states to allow the instrument to warm up for at least 30 minutes.

Figure 162: Absorbance spectrum of Kelly Green A_F after 10 minutes

Figure 163: Absorbance spectrum of Kelly Green A_F after 30 minutes

Figure 164: Absorbance spectrum of Kelly Green A_F after 50 minutes

Phase IV

The R® program was used to display the results of the data that was obtained when the average absorbance, the UCL and the LCL was calculated at the 95% confidence level using the average of the average absorbance values and the average of the average standard deviations of all the front, back, sleeve and armpit sections of the Gold A and Gold B shirt, Kelly Green C and D shirt, Orange E and Orange F shirt, Red G and Red H shirt and Royal I and Royal J shirt.

These results are shown in Figures 48 and 49, Figure 59 and 60, Figure 70 and 71, Figure 81 and 82 and Figure 92 and 93. If another fiber was analyzed from the front, back, sleeve or armpit of the Gold A or Gold B shirt given the operating conditions of the QDI 1000

Microspectrophotometer, it can be concluded that at the 95% confidence level that the absorbance spectrum would fall within the upper and lower limits that were determined in this study. The same conclusion can be made for the Kelly Green C and D shirt, the Orange E and F shirt, the Red G and H shirt and the Royal I and J shirt. Figure 50, 61, 72, 83 and 94 displays the average of the average absorbance values, the 95% UCL and the 95% LCL for every Gold, Kelly Green, Orange, Red and Royal shirt that was analyzed in this study. From Figure 50, it can be concluded at the 95% confidence level that if a fiber was analyzed from the front, back, sleeve or armpit of any Gold shirt used in this study given the operating conditions of the QDI 1000 Microspectrophotometer, its absorbance spectrum would fall within the upper and lower limits that were determined in this study. The same can be concluded for the Kelly Green, Orange, Red and Royal shirts.

An intra-garment comparison was carried out in this phase of the study as well to determine if gold, kelly green, orange, red, and royal cotton fibers can be differentiated depending on the part of the shirt that they come from. Fibers from the front, back, sleeve and armpit of ten different shirts were analyzed for each color. The UCL and the LCL at the 95% confidence level of the front for all ten shirts of every color was determined using the average of the average absorbance values and the average of the standard deviations. This was repeated for the back, sleeve and armpit. For each color, there were six different comparisons that were done between the four different sections; front to back, front to sleeve, front to armpit, back to sleeve, back to armpit, sleeve to armpit. All these comparisons are displayed in Figure 51-56, Figure 62-67, Figure 73-78, Figure 84-89 and Figure 95-100. The OR function in Microsoft® Excel was

used to determine if the four different sections of each shirts that were displayed in the figures could or could not be differentiated from one another. If the front UCL was less than that of the back LCL or the front LCL was greater than that of the back UCL, the equation displayed “true” meaning that the front and back sections could be differentiated from one another. If the equation displayed a “false” then the front and back sections could not be differentiated from one another. If the front UCL was less than that of the sleeve LCL or the front LCL was greater than that of the sleeve UCL, the equation displayed “true” meaning that the front and sleeve sections could be differentiated from one another. If the equation displayed a “false” then the front and sleeve sections could not be differentiated from one another. If the front UCL was less than that of the armpit LCL or the front LCL was greater than that of the armpit UCL, the equation displayed “true” meaning that the front and armpit sections could be differentiated from one another. If the equation displayed a “false” then the front and armpit sections could not be differentiated from one another. If the back UCL was less than that of the sleeve LCL or the back LCL was greater than that of the sleeve UCL, the equation displayed “true” meaning that the back and sleeve sections could be differentiated from one another. If the equation displayed a “false” then the back and sleeve sections could not be differentiated from one another. If the back UCL was less than that of the armpit LCL or the back LCL was greater than that of the armpit UCL, the equation displayed “true” meaning that the back and armpit sections could be differentiated from one another. If the equation displayed a “false” then the back and armpit sections could not be differentiated from one another. If the sleeve UCL was less than that of the armpit LCL or the sleeve LCL was greater than that of the armpit UCL, the equation displayed “true” meaning that the sleeve and armpit sections could be differentiated from one another. If the equation displayed a “false” then the sleeve and armpit sections could not be differentiated from one another. For all six comparisons that were analyzed for every color, the equation displayed “false”, which is displayed in Appendix B. When looking at the figures, the UCL of one section was never less than that of the LCL of another section and the LCL of one section was never greater than that of the UCL of another section. It can be concluded that given the operating conditions of the QDI 1000 Microspectrophotometer the front, back, sleeve and armpit of the ten gold, kelly green, orange, red and royal shirts cannot be differentiated from one another at the 95% confidence level.

Phase V

The R® program was used to display the results of the data that was obtained when the average absorbance, the UCL and the LCL was calculated at the 95% confidence level using the average of the average absorbance values and the average of the average standard deviations of section 1, section 2 and section 3 for the front square of the Gold I and Gold J shirt, for the front square of the Kelly Green G and H shirt, for the front square of the Orange E and Orange F shirt, for the front square of the Red C and Red D shirt and for the front square of the Royal A and Royal B shirt. These results are shown in Figures 103 and 104, Figure 111 and 112, Figure 119 and 120, Figure 127 and 128 and Figure 135 and 136. If another fiber was analyzed from the front square of the Gold I or Gold J shirt given the operating conditions of the QDI 1000 Microspectrophotometer, it can be concluded that at the 95% confidence level that the absorbance spectrum would fall within the upper and lower limits that were determined in this study. The same conclusion can be made for the front square of the Kelly Green G and H shirts, for the front square of the Orange E and F shirts, for the front square of the Red C and D shirts and for the front square of the Royal A and B shirts. Figure 105, 113, 121, 129 and 137 displays the average of the average absorbance values, the 95% UCL and the 95% LCL for every Gold, Kelly Green, Orange, Red and Royal front square that was analyzed in this study. From Figure 105, it can be concluded at the 95% confidence level that if a fiber was cut into three sections and analyzed from the front square of Gold shirt used in this study given the operating conditions of the QDI 1000 Microspectrophotometer, its absorbance spectrum would fall within the upper and lower limits that were determined in this study. The same can be concluded for the front square of the Kelly Green, Orange, Red and Royal shirts.

An inter-garment comparison was carried out in this phase of the study as well to determine if there was variability within the three sections of the same fiber. The UCL and the LCL at the 95% confidence level for section 1 for all ten front squares of the shirts of every color was determined using the average of the average absorbance values and the average of the standard deviations. This was repeated for section 2 and section 3. For each color, there were three different comparisons that were done between the three different sections; section 1 to section 2, section 1 to section 3 and section 2 to section 3. All these comparisons are displayed in Figure 106-108 Figure 114-116, Figure 122-124, Figure 130-132 and Figure 138-140. The OR

function in Microsoft® Excel was used to determine if the three different sections of the front square of each shirt that were displayed in the figures could or could not be differentiated from one another. If the section 1 UCL was less than that of the section 2 LCL or the section 1 LCL was greater than that of the section 2 UCL, the equation displayed “true” meaning that section 1 and section 2 could be differentiated from one another. If the equation displayed a “false” then section 1 and section 2 could not be differentiated from one another. If the section 1 UCL was less than that of the section 3 LCL or the section 1 LCL was greater than that of the section 3 UCL, the equation displayed “true” meaning that section 1 and section 3 could be differentiated from one another. If the equation displayed a “false” then section 1 and section 3 could not be differentiated from one another. If the section 2 UCL was less than that of the section 3 LCL or the section 2 LCL was greater than that of the section 3 UCL, the equation displayed “true” meaning section 2 and section 3 could be differentiated from one another. If the equation displayed a “false” then section 2 and section 3 could not be differentiated from one another. For all three comparisons that were analyzed for every front square of every color, the equation displayed “false”, which is displayed in Appendix B. When looking at the figures, the UCL of one section was never less than that of the LCL of another section and the LCL of one section was never greater than that of the UCL of another section. It can be concluded that given the operating conditions of the QDI 1000 Microspectrophotometer section 1, section 2 and section 3 of the front squares of all five colors cannot be differentiated from one another at the 95% confidence level.

V: Conclusion

To complete this study, it was concluded by comparing the five colors used in this study to each other. To determine if one can differentiate between Gold, Kelly Green, Orange, Red and Royal when comparing their absorbance spectra, the UCL and the LCL at the 95% confidence level was determined for all Gold, Kelly Green, Orange, Red and Royal shirts using the average of the average absorbance values and the average of the standard deviations. There were ten different comparisons that were done between the five different color shirts; orange to red, orange to kelly green, orange to gold, orange to royal, kelly green to red, kelly green to gold, kelly green to royal, red to gold, red to royal and gold to royal. All these comparisons are

displayed in Figure 141-150. The OR function in Microsoft® Excel was used to determine if the five different color that are displayed in the figures could or could not be differentiated from one another. If the Red UCL was less than that of the Orange LCL or the Red LCL was greater than that of the Orange UCL, the equation displayed “true” meaning that red and orange could be differentiated from one another. If the equation displayed a “false” red and orange could not be differentiated from one another. If the Kelly Green UCL was less than that of the Orange LCL or the Kelly Green LCL was greater than that of the Orange UCL, the equation displayed “true” meaning that orange and kelly green could be differentiated from one another. If the equation displayed a “false” orange and kelly green could not be differentiated from one another. If the Gold UCL was less than that of the Orange LCL or the Gold LCL was greater than that of the Orange UCL, the equation displayed “true” meaning orange and gold could be differentiated from one another. If the equation displayed a “false” than orange and gold could not be differentiated from one another. If the Royal UCL was less than that of the Orange LCL or the Royal LCL was greater than that of the Orange UCL, the equation displayed “true” meaning that orange and royal could be differentiated from one another. If the equation displayed a “false” than orange and royal could be differentiated from one another. If the Red UCL was less than that of the Kelly Green LCL or the Red LCL was greater than that of the Kelly Green UCL, the equation displayed “true” meaning that red and kelly green could be differentiated from one another. If the equation displayed a “false” than red and kelly green could not be differentiated from one another. If the Gold UCL was less than that of the Kelly Green LCL or the Gold LCL was greater than that of the Kelly Green UCL, the equation displayed “true” meaning kelly green and gold could be differentiated from one another. If the equation displayed a “false” than kelly green and gold could not be differentiated from one another. If the Gold UCL was less than that of the Red LCL or the Gold LCL was greater than that of the Red UCL, the equation displayed “true” meaning red and gold could be differentiated from one another. If the equation displayed a “false” than red and gold could not be differentiated from one another. If the Royal UCL was less than that of the Red LCL or the Royal LCL was greater than that of the Red UCL, the equation displayed “true” meaning red and royal could be differentiated from one another. If the equation displayed a “false” than red and royal could not be differentiated from one another. If the Royal UCL was less than that of the Gold LCL or the Royal LCL was greater than that of the Gold UCL, the equation displayed “true” meaning gold and royal could be differentiated from

one another. If the equation displayed a “false” than gold and royal could not be differentiated from one another. Table 12 indicates the results when the OR function was applied to the data.

Orange - Red	Orange - Kelly Green	Orange-Gold	Orange-Royal	Kelly Green-Red	Kelly Green-Gold
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
FALSE	FALSE	FALSE	TRUE	FALSE	FALSE
FALSE	TRUE	FALSE	TRUE	TRUE	FALSE
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FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
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FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
Kelly Green-Royal	Red-Gold	Red-Royal	Gold-Royal		
FALSE	FALSE	FALSE	FALSE		
FALSE	FALSE	FALSE	FALSE		
FALSE	FALSE	FALSE	FALSE		
FALSE	FALSE	FALSE	FALSE		
FALSE	FALSE	TRUE	FALSE		
FALSE	FALSE	TRUE	FALSE		
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FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE
FALSE	FALSE	FALSE	FALSE

Table 12: The OR functions results of the ten comparisons of all five colors

Orange and kelly green can be differentiated between 460 nm and 550 nm and also between 590 nm and 710 nm. Orange and gold can be differentiated between 470 and 560 nm. Orange and royal can be differentiated between 420 nm and 530 nm as well as between 570 nm and 670 nm. Kelly Green and red can be differentiated between 460 nm and 560 nm as well as between 610 nm and 700 nm. Kelly green and gold can be differentiated between 580 nm and 710 nm. Kelly Green and royal can be differentiated between 670 nm and 710 nm. Red and gold can be differentiated between 470 nm and 580 nm. Red and royal can be differentiated between 420 nm and 540 nm as well as between 580 nm and 710 nm. Gold and royal can be differentiated between at 440 nm as well as between 540 nm and 670 nm. When plotting the absorbance spectra of orange and red together, they both have the same general shape and had maximum absorbance values between 500 nm and 520 nm. Although the red and orange absorbance spectra are very similar, they can still be differentiated between 560 nm and 580 nm. It is also important to note that these colors can be differentiated given the operating conditions of the QDI 1000 Microspectrophotometer. When looking at the figures, the UCL of one color was less than that of the LCL of another color and the LCL of one color was greater than that of the UCL of another color at some point in the UV/ Visible region for all ten comparison that were analyzed.

VI: Future Research

Phase IV and Phase V concluded that given the operating conditions on the QDI 1000 Microspectrophotometer, at the 95% confidence level the differentiation of cotton fibers cannot be achieved when conducting an intra- garment and inter-garment comparison. Although a negative conclusion was reached in this study, it would be interesting to analyze cotton fibers from other similar colored shirts or one could even use a different brand of shirt using the same analytical sequence. Using the absorbance value that was obtained, it could be determined if the average absorbance would fall within the upper confidence limit and the lower confidence limit that were determined in this study.

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VIII: Appendix A

Absorbance spectrum of the front t-shirt square of Gold A

Absorbance spectrum of the back t-shirt square of Gold B

Absorbance spectrum of the sleeve t-shirt square of Kelly Green C

Absorbance spectrum of the armpit t-shirt square of Kelly Green D

Absorbance spectrum of the front t-shirt square of Orange E

Absorbance spectrum of the back t-shirt square of Orange F

Absorbance spectrum of the sleeve t-shirt square of Red G

Absorbance spectrum of the armpit t-shirt square of Red H

Absorbance spectrum of the front t-shirt square of Royal I

Absorbance spectrum of the back t-shirt square of Royal J

Absorbance spectrum of Kelly Green A_F when using an average scan of 2

Absorbance spectrum of Kelly Green A_F when using an average scan of 10

Absorbance spectrum of Kelly Green A_F when using an average scan of 15

Absorbance spectrum of Kelly Green A_F when using an average scan of 30

Absorbance spectrum of Kelly Green A_F when using an average scan of 100

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 1

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 3

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 7

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 9

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 11

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 15ms

Absorbance spectrum of Kelly Green A_F when using a boxcar width of 100 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 10 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 30 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 50 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 200 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 300 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 500 ms

Absorbance spectrum of Kelly Green A_F when using an integration time of 1000 ms

Absorbance spectrum of Kelly Green A_F after 1 minute in Part 1 of Phase III

Absorbance spectrum of Kelly Green A_F after 10 minutes in Part 1 of Phase III

Absorbance spectrum of Kelly Green A_F after 20 minutes in Part 1 of Phase III

Absorbance spectrum of Kelly Green A_F after 50 minutes in Part 1 of Phase III

Absorbance spectrum of Kelly Green A_F after 1 hour in Part 1 of Phase III

Absorbance spectrum of Kelly Green A_F after 2 minutes in Part II of Phase III

Absorbance spectrum of Kelly Green A_F after 11 minutes in Part II of Phase III

Absorbance spectrum of Kelly Green A_F after 21 minutes in Part II of Phase III

Absorbance spectrum of Kelly Green A_F after 41 minutes in Part II of Phase III

Absorbance spectrum of Kelly Green A_F after 51 minutes in Part II of Phase III

Run 1 absorbance spectrum of the front t-shirt square of Gold A

Run 2 absorbance spectrum of the back t-shirt square of Gold B

Run 3 absorbance spectrum of the sleeve t-shirt square of Kelly Green C

Run 4 absorbance spectrum of the armpit t-shirt square of Kelly Green D

Run 5 absorbance spectrum of the front t-shirt square of Orange E

Run 6 absorbance spectrum of the back t-shirt square of Orange F

Run 7 absorbance spectrum of the sleeve t-shirt square of Red G

Run 8 absorbance spectrum of the armpit t-shirt square of Red H

Run 9 absorbance spectrum of the front t-shirt square of Royal I

Run 10 absorbance spectrum of the back t t-shirt square of Royal J

Run 1 absorbance spectrum of the Section 1 t-shirt square of Gold I

Run 2 absorbance spectrum of the Section 2 t-shirt square of Gold J

Run 3 absorbance spectrum of the Section 3 t-shirt square of Kelly Green G

Run 4 absorbance spectrum of the Section 1 t-shirt square of Kelly Green H

Run 5 absorbance spectrum of the Section 2 t-shirt square of Orange E

Run 6 absorbance spectrum of the Section 3 t-shirt square of Orange F

Run 7 absorbance spectrum of the Section 1 t-shirt square of Red C

Run 8 absorbance spectrum of the Section 2 t-shirt square of Red D

Run 9 absorbance spectrum of the Section 3 t-shirt square of Royal A

Run 10 absorbance spectrum of the Section 1 t-shirt square of Royal B

IX: Appendix B

Wavelength	Armpit	Back	Front	Sleeve	Average
400.21	0.60978	0.975	0.75254	0.49203	0.707
400.58	0.61376	0.99763	0.76506	0.49579	0.718
400.95	0.6165	0.99443	0.76092	0.49347	0.716
401.32	0.61975	1.02582	0.76662	0.4918	0.726
401.69	0.6287	1.05518	0.77439	0.49732	0.739
402.06	0.63185	1.05409	0.78163	0.49717	0.741
402.43	0.63491	1.06503	0.79235	0.49559	0.747
402.80	0.64733	1.08748	0.79932	0.50167	0.759
403.18	0.66041	1.09818	0.80085	0.50313	0.766
403.55	0.66399	1.09339	0.79633	0.50393	0.764
403.92	0.66287	1.08779	0.79209	0.5033	0.762
404.29	0.66027	1.10256	0.79926	0.50721	0.767
404.66	0.66642	1.1328	0.81271	0.51111	0.781
405.03	0.66918	1.13602	0.81477	0.50653	0.782
405.40	0.67303	1.15118	0.81843	0.51395	0.789
405.77	0.67292	1.1405	0.8191	0.5105	0.786
406.14	0.67465	1.14248	0.8244	0.51371	0.789
406.51	0.6779	1.16832	0.83132	0.51519	0.798
406.88	0.67175	1.16239	0.82899	0.51867	0.795
407.25	0.67209	1.16834	0.81703	0.51952	0.794
407.62	0.67248	1.17869	0.8186	0.51944	0.797
407.99	0.67241	1.16332	0.81884	0.52205	0.794
408.36	0.67081	1.14253	0.8139	0.52123	0.787
408.74	0.67992	1.1533	0.82459	0.52473	0.796
409.11	0.6824	1.13112	0.81899	0.52921	0.790
409.48	0.68733	1.13865	0.82657	0.53273	0.796
409.85	0.6869	1.13588	0.82659	0.53285	0.796
410.22	0.69338	1.13281	0.82774	0.53675	0.798
410.59	0.69603	1.13537	0.82855	0.5381	0.800
410.96	0.69133	1.12523	0.8247	0.53816	0.795
411.33	0.69431	1.13639	0.83561	0.5412	0.802
411.70	0.69843	1.13998	0.84019	0.54191	0.805
412.07	0.70039	1.13212	0.83663	0.54085	0.802

412.44	0.6999	1.13997	0.83586	0.54281	0.805
412.81	0.69823	1.14559	0.83871	0.54815	0.808
413.18	0.70296	1.14779	0.83711	0.54981	0.809
413.55	0.7013	1.14742	0.83388	0.55153	0.809
413.92	0.70065	1.13481	0.82841	0.55039	0.804
414.29	0.70009	1.12409	0.82679	0.55056	0.800
414.66	0.70275	1.13143	0.83473	0.55223	0.805
415.03	0.70348	1.13075	0.83599	0.55368	0.806
415.40	0.7071	1.13491	0.83568	0.5553	0.808
415.76	0.7082	1.13706	0.83426	0.55494	0.809
416.13	0.71001	1.14126	0.83964	0.5571	0.812
416.50	0.70827	1.13974	0.83909	0.55917	0.812
416.87	0.7105	1.14917	0.84302	0.55804	0.815
417.24	0.70826	1.14288	0.83655	0.55647	0.811
417.61	0.70882	1.15089	0.83358	0.55862	0.813
417.98	0.70395	1.15979	0.83091	0.55635	0.813
418.35	0.70116	1.15761	0.82917	0.55474	0.811
418.72	0.70507	1.1683	0.83377	0.55736	0.816
419.09	0.70512	1.16195	0.83133	0.55743	0.814
419.46	0.70367	1.15687	0.83285	0.55773	0.813
419.83	0.70827	1.1581	0.83549	0.55994	0.815
420.20	0.71077	1.15389	0.83654	0.5609	0.816
420.57	0.7172	1.15498	0.8376	0.56182	0.818
420.94	0.71877	1.15784	0.84251	0.56214	0.820
421.31	0.72562	1.16981	0.84701	0.56469	0.827
421.67	0.72758	1.17467	0.84889	0.56844	0.830
422.04	0.73383	1.18191	0.85139	0.57256	0.835
422.41	0.73476	1.18628	0.8511	0.57303	0.836
422.78	0.73373	1.19239	0.85093	0.57248	0.837
423.15	0.73424	1.19254	0.85188	0.57643	0.839
423.52	0.73767	1.20422	0.85884	0.57957	0.845
423.89	0.74151	1.21581	0.86212	0.58021	0.850
424.26	0.74587	1.21826	0.86161	0.57895	0.851
424.63	0.74966	1.2225	0.86464	0.58186	0.855
424.99	0.75045	1.22576	0.86712	0.58518	0.857
425.36	0.75499	1.22788	0.86957	0.58575	0.860
425.73	0.75747	1.2277	0.86961	0.58954	0.861
426.10	0.76033	1.22579	0.86895	0.59208	0.862
426.47	0.76102	1.22914	0.87046	0.59146	0.863

426.84	0.76168	1.22617	0.86931	0.59315	0.863
427.21	0.76539	1.22957	0.8706	0.59511	0.865
427.57	0.76425	1.23504	0.87001	0.59417	0.866
427.94	0.7638	1.23478	0.87215	0.5938	0.866
428.31	0.76134	1.23376	0.87101	0.59235	0.865
428.68	0.76012	1.2362	0.86777	0.59224	0.864
429.05	0.75648	1.23007	0.86695	0.5924	0.861
429.42	0.75852	1.23786	0.86838	0.59299	0.864
429.78	0.75891	1.23667	0.87015	0.59223	0.864
430.15	0.75962	1.23791	0.87238	0.59334	0.866
430.52	0.76134	1.2416	0.87571	0.59382	0.868
430.89	0.76178	1.24315	0.87602	0.5933	0.869
431.26	0.76052	1.23669	0.87443	0.59114	0.866
431.62	0.75932	1.23067	0.87006	0.58888	0.862
431.99	0.75619	1.23289	0.86964	0.58921	0.862
432.36	0.75728	1.23674	0.86998	0.58966	0.863
432.73	0.75844	1.23786	0.86915	0.5902	0.864
433.10	0.7562	1.2338	0.86697	0.59054	0.862
433.46	0.75684	1.22958	0.86869	0.58921	0.861
433.83	0.75619	1.23275	0.87087	0.58979	0.862
434.20	0.75836	1.23532	0.87339	0.59241	0.865
434.57	0.75907	1.23955	0.87207	0.59176	0.866
434.94	0.75993	1.2515	0.87399	0.5919	0.869
435.30	0.76145	1.25952	0.8754	0.5944	0.873
435.67	0.76406	1.26157	0.87531	0.59453	0.874
436.04	0.76574	1.25889	0.87691	0.59654	0.875
436.41	0.7678	1.26077	0.87966	0.59824	0.877
436.77	0.76939	1.25999	0.88298	0.59894	0.878
437.14	0.76975	1.25912	0.88503	0.59896	0.878
437.51	0.76871	1.26165	0.88479	0.5986	0.878
437.88	0.77062	1.26446	0.88328	0.59862	0.879
438.24	0.77173	1.2601	0.88274	0.59855	0.878
438.61	0.77185	1.26365	0.88415	0.59945	0.880
438.98	0.77275	1.26808	0.88504	0.60102	0.882
439.34	0.77438	1.26925	0.88687	0.60244	0.883
439.71	0.77673	1.2676	0.88872	0.603	0.884
440.08	0.77368	1.26029	0.88741	0.60466	0.882
440.45	0.77475	1.26017	0.88771	0.60366	0.882
440.81	0.77613	1.25855	0.89044	0.60453	0.882

441.18	0.77555	1.25915	0.89089	0.60452	0.883
441.55	0.77461	1.25729	0.89078	0.60318	0.881
441.91	0.77315	1.25474	0.88883	0.60176	0.880
442.28	0.77224	1.25072	0.88677	0.60228	0.878
442.65	0.77177	1.24398	0.88512	0.60195	0.876
443.01	0.77094	1.23977	0.88498	0.60079	0.874
443.38	0.77059	1.23902	0.88382	0.60221	0.874
443.75	0.7699	1.23682	0.88372	0.60225	0.873
444.12	0.76722	1.22964	0.88141	0.60156	0.870
444.48	0.76794	1.2302	0.88006	0.60043	0.870
444.85	0.76821	1.23219	0.87937	0.59985	0.870
445.22	0.76814	1.23008	0.87605	0.59956	0.868
445.58	0.76698	1.22411	0.87521	0.59837	0.866
445.95	0.76609	1.2236	0.87629	0.59913	0.866
446.31	0.76623	1.22239	0.87438	0.5985	0.865
446.68	0.76567	1.2225	0.87252	0.59769	0.865
447.05	0.76423	1.22185	0.87153	0.59849	0.864
447.41	0.76297	1.21949	0.87244	0.59825	0.863
447.78	0.76312	1.21985	0.87226	0.59665	0.863
448.15	0.76197	1.21805	0.87174	0.59638	0.862
448.51	0.76302	1.218	0.87007	0.59617	0.862
448.88	0.76452	1.21738	0.86804	0.59679	0.862
449.25	0.76517	1.21556	0.86641	0.5961	0.861
449.61	0.76538	1.2125	0.86563	0.59598	0.860
449.98	0.76441	1.21579	0.86729	0.59585	0.861
450.34	0.76359	1.21416	0.86715	0.59633	0.860
450.71	0.76377	1.21007	0.86453	0.5959	0.859
451.08	0.76347	1.20932	0.864	0.59523	0.858
451.44	0.76344	1.21128	0.86262	0.59432	0.858
451.81	0.76447	1.21241	0.86192	0.59378	0.858
452.17	0.7635	1.21059	0.86232	0.59288	0.857
452.54	0.76323	1.20596	0.85942	0.59216	0.855
452.91	0.76133	1.20411	0.86031	0.59151	0.854
453.27	0.76103	1.20548	0.86027	0.59203	0.855
453.64	0.76074	1.20533	0.85949	0.59064	0.854
454.00	0.76035	1.20339	0.85846	0.58918	0.853
454.37	0.76011	1.19974	0.85645	0.58857	0.851
454.73	0.7601	1.19928	0.85458	0.58805	0.851
455.10	0.75981	1.19862	0.85311	0.58738	0.850

455.47	0.75807	1.19387	0.85042	0.58652	0.847
455.83	0.75779	1.19266	0.84955	0.58594	0.846
456.20	0.75588	1.19192	0.84945	0.58433	0.845
456.56	0.75477	1.19025	0.84931	0.58351	0.844
456.93	0.75445	1.19035	0.84712	0.58411	0.844
457.29	0.75212	1.18908	0.84597	0.58211	0.842
457.66	0.75319	1.18641	0.84538	0.58056	0.841
458.02	0.75249	1.18431	0.84348	0.57892	0.840
458.39	0.75115	1.18386	0.84292	0.57803	0.839
458.75	0.74843	1.17973	0.83983	0.576	0.836
459.12	0.747	1.17813	0.83944	0.57565	0.835
459.48	0.74559	1.17449	0.83829	0.57519	0.833
459.85	0.7445	1.1725	0.83494	0.57541	0.832
460.21	0.74253	1.17022	0.8341	0.57432	0.830
460.58	0.74221	1.16755	0.83288	0.5731	0.829
460.94	0.74057	1.16202	0.82951	0.5713	0.826
461.31	0.73981	1.15882	0.8276	0.5706	0.824
461.67	0.73848	1.15637	0.82541	0.57018	0.823
462.04	0.73722	1.15375	0.82414	0.56971	0.821
462.40	0.73684	1.15211	0.82221	0.56915	0.820
462.77	0.7354	1.15073	0.8184	0.56801	0.818
463.13	0.73485	1.14964	0.81689	0.56716	0.817
463.50	0.73325	1.14597	0.81444	0.56563	0.815
463.86	0.73162	1.14214	0.81186	0.56497	0.813
464.23	0.72997	1.14224	0.80931	0.56376	0.811
464.59	0.72868	1.13924	0.80684	0.56267	0.809
464.96	0.72771	1.13702	0.80409	0.5624	0.808
465.32	0.72544	1.13355	0.80035	0.56168	0.805
465.69	0.72439	1.13421	0.79851	0.56129	0.805
466.05	0.72259	1.1293	0.79592	0.55949	0.802
466.41	0.72208	1.127	0.7944	0.55856	0.801
466.78	0.71983	1.12236	0.79098	0.55726	0.798
467.14	0.71858	1.12106	0.78851	0.55575	0.796
467.51	0.71679	1.11986	0.78662	0.55431	0.794
467.87	0.71522	1.11832	0.7854	0.5535	0.793
468.24	0.71343	1.11869	0.78311	0.55265	0.792
468.60	0.71253	1.11815	0.78182	0.55247	0.791
468.96	0.71011	1.1151	0.77868	0.55055	0.789
469.33	0.70804	1.11149	0.77618	0.5486	0.786

469.69	0.70658	1.10952	0.77453	0.54731	0.784
470.06	0.70401	1.10797	0.77287	0.54509	0.782
470.42	0.70269	1.10658	0.77137	0.54351	0.781
470.78	0.70098	1.1049	0.76953	0.54175	0.779
471.15	0.69835	1.10215	0.7667	0.54041	0.777
471.51	0.69711	1.10124	0.76461	0.53948	0.776
471.88	0.69474	1.09832	0.76297	0.53776	0.773
472.24	0.69294	1.09834	0.76206	0.53647	0.772
472.60	0.69109	1.0963	0.76063	0.5348	0.771
472.97	0.68882	1.09477	0.75949	0.53268	0.769
473.33	0.68718	1.09171	0.7574	0.53052	0.767
473.69	0.68551	1.09151	0.7557	0.52953	0.766
474.06	0.68398	1.09051	0.75425	0.52829	0.764
474.42	0.68271	1.0887	0.75227	0.52606	0.762
474.78	0.68085	1.08631	0.74982	0.52426	0.760
475.15	0.67987	1.08288	0.74798	0.52271	0.758
475.51	0.67784	1.08038	0.74533	0.52061	0.756
475.87	0.67613	1.07667	0.74317	0.51878	0.754
476.24	0.67383	1.07463	0.74117	0.51659	0.752
476.60	0.6727	1.07136	0.73918	0.51551	0.750
476.96	0.67122	1.06991	0.73721	0.51393	0.748
477.33	0.66941	1.06829	0.73499	0.51187	0.746
477.69	0.6674	1.06475	0.73269	0.5097	0.744
478.05	0.66529	1.06109	0.73064	0.5075	0.741
478.42	0.66344	1.0596	0.72801	0.50579	0.739
478.78	0.6616	1.05751	0.72613	0.50379	0.737
479.14	0.65905	1.05549	0.72401	0.50165	0.735
479.51	0.65707	1.05274	0.72151	0.49997	0.733
479.87	0.65483	1.04944	0.71876	0.49797	0.730
480.23	0.65328	1.04688	0.71632	0.49628	0.728
480.60	0.65131	1.04378	0.71368	0.49482	0.726
480.96	0.64868	1.03913	0.71082	0.49304	0.723
481.32	0.64659	1.03614	0.70834	0.49087	0.720
481.68	0.64453	1.03421	0.7057	0.48879	0.718
482.05	0.64251	1.03161	0.7031	0.48657	0.716
482.41	0.64044	1.02913	0.70057	0.48438	0.714
482.77	0.63738	1.02713	0.69754	0.48218	0.711
483.13	0.63527	1.02482	0.69537	0.4805	0.709
483.50	0.63326	1.02184	0.69287	0.47872	0.707

483.86	0.63089	1.01807	0.69036	0.47638	0.704
484.22	0.62837	1.0162	0.68769	0.47403	0.702
484.58	0.62609	1.01334	0.68484	0.47227	0.699
484.95	0.6236	1.01029	0.68191	0.4703	0.697
485.31	0.62111	1.00677	0.67855	0.46836	0.694
485.67	0.61846	1.00393	0.67534	0.46667	0.691
486.03	0.61577	1.00032	0.67245	0.46443	0.688
486.40	0.61318	0.99673	0.66947	0.46257	0.685
486.76	0.611	0.99335	0.66626	0.46077	0.683
487.12	0.6091	0.9907	0.66341	0.45868	0.680
487.48	0.60668	0.98806	0.66034	0.45685	0.678
487.85	0.60401	0.98482	0.65687	0.45497	0.675
488.21	0.60169	0.98217	0.65364	0.45315	0.673
488.57	0.59914	0.98007	0.6504	0.45128	0.670
488.93	0.59653	0.97722	0.6474	0.44947	0.668
489.29	0.59363	0.97354	0.6443	0.44731	0.665
489.65	0.5912	0.97101	0.64122	0.44602	0.662
490.02	0.58826	0.96737	0.63802	0.44403	0.659
490.38	0.58592	0.96347	0.63475	0.44236	0.657
490.74	0.58325	0.95917	0.63091	0.44011	0.653
491.10	0.58033	0.95521	0.62747	0.43801	0.650
491.46	0.57764	0.95196	0.62371	0.43611	0.647
491.83	0.57463	0.94822	0.62034	0.43419	0.644
492.19	0.57157	0.94457	0.61732	0.43202	0.641
492.55	0.56894	0.94088	0.61388	0.42982	0.638
492.91	0.56604	0.9375	0.61094	0.42776	0.636
493.27	0.56313	0.93464	0.60791	0.4259	0.633
493.63	0.56024	0.93078	0.60445	0.42386	0.630
493.99	0.55765	0.92791	0.60153	0.42164	0.627
494.36	0.55468	0.92372	0.59847	0.41908	0.624
494.72	0.55171	0.91974	0.59504	0.41693	0.621
495.08	0.54891	0.91542	0.59218	0.41449	0.618
495.44	0.54595	0.91168	0.58924	0.41202	0.615
495.80	0.54296	0.90773	0.58629	0.40954	0.612
496.16	0.53977	0.90375	0.58295	0.4071	0.608
496.52	0.53675	0.89945	0.57957	0.40482	0.605
496.88	0.53378	0.89568	0.57617	0.40257	0.602
497.25	0.53081	0.89153	0.57298	0.39989	0.599
497.61	0.52813	0.88757	0.57013	0.39772	0.596

497.97	0.52528	0.88404	0.56705	0.39512	0.593
498.33	0.52208	0.88017	0.56404	0.39248	0.590
498.69	0.5189	0.87664	0.56065	0.38999	0.587
499.05	0.51591	0.87302	0.55776	0.38765	0.584
499.41	0.51283	0.86883	0.55471	0.38504	0.580
499.77	0.51001	0.86468	0.55135	0.38254	0.577
500.13	0.50682	0.86031	0.54806	0.38007	0.574
500.49	0.50371	0.85567	0.5448	0.37749	0.570
500.85	0.50059	0.8508	0.54129	0.37443	0.567
501.22	0.49756	0.8466	0.53789	0.3719	0.563
501.58	0.49461	0.84207	0.53429	0.36942	0.560
501.94	0.49136	0.83779	0.53067	0.36701	0.557
502.30	0.48798	0.83362	0.52722	0.36417	0.553
502.66	0.48449	0.82906	0.52349	0.36129	0.550
503.02	0.481	0.82459	0.5198	0.35849	0.546
503.38	0.47755	0.82006	0.51595	0.35566	0.542
503.74	0.47424	0.81537	0.51246	0.35287	0.539
504.10	0.4711	0.81098	0.50897	0.34998	0.535
504.46	0.46752	0.8059	0.50487	0.34687	0.531
504.82	0.46375	0.80125	0.50113	0.34395	0.528
505.18	0.46007	0.79652	0.49709	0.34104	0.524
505.54	0.45628	0.7917	0.49329	0.3382	0.520
505.90	0.45274	0.78712	0.48949	0.33549	0.516
506.26	0.44921	0.7821	0.4857	0.33264	0.512
506.62	0.44557	0.77702	0.48166	0.32937	0.508
506.98	0.44213	0.7725	0.47784	0.32646	0.505
507.34	0.43845	0.7674	0.4737	0.32315	0.501
507.70	0.43442	0.76244	0.46976	0.31996	0.497
508.06	0.43083	0.75785	0.46584	0.31692	0.493
508.42	0.42733	0.75324	0.46201	0.31391	0.489
508.78	0.42386	0.74827	0.45822	0.31078	0.485
509.14	0.41987	0.74294	0.45444	0.30754	0.481
509.50	0.41599	0.73756	0.45033	0.3042	0.477
509.86	0.41223	0.73228	0.44616	0.30103	0.473
510.22	0.40854	0.72721	0.4422	0.29792	0.469
510.58	0.40471	0.72213	0.43814	0.29485	0.465
510.94	0.40093	0.71722	0.4344	0.29157	0.461
511.30	0.39729	0.71228	0.43046	0.28836	0.457
511.66	0.39337	0.70714	0.42648	0.28522	0.453

512.02	0.38961	0.70242	0.42289	0.28223	0.449
512.38	0.38622	0.69739	0.41925	0.27945	0.446
512.74	0.38238	0.69257	0.41536	0.2763	0.442
513.09	0.37862	0.68765	0.41148	0.27309	0.438
513.45	0.37497	0.68288	0.40758	0.27006	0.434
513.81	0.37118	0.6784	0.40384	0.267	0.430
514.17	0.36734	0.67341	0.40009	0.26409	0.426
514.53	0.36365	0.66866	0.39639	0.26096	0.422
514.89	0.35986	0.66424	0.39271	0.2582	0.419
515.25	0.35625	0.6594	0.38904	0.25557	0.415
515.61	0.35253	0.65459	0.38533	0.25239	0.411
515.97	0.34861	0.64933	0.38137	0.24943	0.407
516.33	0.34466	0.64461	0.37747	0.24643	0.403
516.69	0.34085	0.63981	0.37373	0.24351	0.399
517.04	0.3373	0.63541	0.37007	0.2407	0.396
517.40	0.33351	0.63038	0.36636	0.23784	0.392
517.76	0.32966	0.62569	0.36253	0.23491	0.388
518.12	0.32608	0.62091	0.3587	0.23193	0.384
518.48	0.3223	0.616	0.35473	0.22893	0.380
518.84	0.31839	0.61126	0.35081	0.22607	0.377
519.20	0.31452	0.60642	0.34713	0.22302	0.373
519.56	0.31091	0.60144	0.34328	0.22021	0.369
519.91	0.30697	0.59663	0.33948	0.21711	0.365
520.27	0.30332	0.59176	0.33579	0.21412	0.361
520.63	0.29953	0.58661	0.33188	0.21113	0.357
520.99	0.29572	0.58145	0.32821	0.20816	0.353
521.35	0.2921	0.57612	0.3245	0.20512	0.349
521.71	0.28865	0.57157	0.32075	0.2021	0.346
522.06	0.28493	0.56623	0.31694	0.19903	0.342
522.42	0.28141	0.56137	0.31355	0.19617	0.338
522.78	0.2778	0.55686	0.30987	0.19293	0.334
523.14	0.27415	0.55186	0.30609	0.18988	0.330
523.50	0.27058	0.54719	0.30254	0.18698	0.327
523.86	0.26669	0.54217	0.29891	0.18399	0.323
524.21	0.26316	0.53728	0.29508	0.18094	0.319
524.57	0.25944	0.53246	0.29152	0.17798	0.315
524.93	0.25579	0.52763	0.28791	0.17501	0.312
525.29	0.25233	0.52284	0.28447	0.17222	0.308
525.65	0.24894	0.51789	0.28125	0.16951	0.304

526.00	0.24533	0.51283	0.27771	0.16671	0.301
526.36	0.24191	0.50798	0.27442	0.16384	0.297
526.72	0.23846	0.50307	0.27066	0.16112	0.293
527.08	0.23501	0.49821	0.26736	0.1584	0.290
527.44	0.23156	0.49315	0.26391	0.15572	0.286
527.79	0.22798	0.48821	0.26036	0.15284	0.282
528.15	0.22448	0.48355	0.25697	0.14994	0.279
528.51	0.22101	0.47876	0.25335	0.14718	0.275
528.87	0.2174	0.47404	0.24978	0.14436	0.271
529.22	0.21381	0.46891	0.24626	0.14166	0.268
529.58	0.21057	0.46421	0.24264	0.13916	0.264
529.94	0.20708	0.45929	0.23915	0.13639	0.260
530.30	0.20367	0.45415	0.23561	0.13372	0.257
530.65	0.20023	0.44931	0.23233	0.13134	0.253
531.01	0.19679	0.44443	0.22892	0.12858	0.250
531.37	0.19357	0.43976	0.22576	0.12612	0.246
531.72	0.19019	0.43502	0.22268	0.1236	0.243
532.08	0.18681	0.42989	0.21936	0.12093	0.239
532.44	0.18362	0.42511	0.21628	0.11843	0.236
532.80	0.18013	0.42001	0.21276	0.11559	0.232
533.15	0.17674	0.41546	0.20948	0.1129	0.229
533.51	0.17338	0.41078	0.2063	0.11041	0.225
533.87	0.17012	0.40589	0.20308	0.10778	0.222
534.22	0.16682	0.40133	0.20009	0.10532	0.218
534.58	0.16362	0.3966	0.19691	0.10264	0.215
534.94	0.16031	0.39207	0.1938	0.10001	0.212
535.30	0.15723	0.38737	0.19084	0.09773	0.208
535.65	0.15402	0.38268	0.1878	0.09541	0.205
536.01	0.15088	0.37801	0.18491	0.09306	0.202
536.37	0.14789	0.37338	0.18211	0.09074	0.199
536.72	0.14459	0.36881	0.17917	0.08851	0.195
537.08	0.14145	0.36435	0.1762	0.08602	0.192
537.44	0.1383	0.35964	0.17313	0.08354	0.189
537.79	0.13524	0.35506	0.17035	0.08116	0.185
538.15	0.1321	0.35057	0.16748	0.0788	0.182
538.51	0.12896	0.34608	0.16458	0.07656	0.179
538.86	0.12587	0.34138	0.16157	0.07413	0.176
539.22	0.12278	0.33693	0.15844	0.0717	0.172
539.57	0.11966	0.33247	0.15565	0.0695	0.169

539.93	0.11643	0.32806	0.15283	0.06716	0.166
540.29	0.11335	0.32365	0.15026	0.06502	0.163
540.64	0.11007	0.31904	0.14735	0.0627	0.160
541.00	0.10698	0.31448	0.14457	0.06035	0.157
541.36	0.10402	0.31015	0.14189	0.05825	0.154
541.71	0.10097	0.30563	0.13897	0.05591	0.150
542.07	0.09771	0.30123	0.13616	0.05359	0.147
542.42	0.09467	0.29676	0.1334	0.05132	0.144
542.78	0.09159	0.29258	0.13093	0.04906	0.141
543.14	0.08861	0.28816	0.12837	0.04691	0.138
543.49	0.0858	0.28398	0.1258	0.04467	0.135
543.85	0.08274	0.27978	0.12321	0.04246	0.132
544.20	0.0799	0.27563	0.12069	0.04007	0.129
544.56	0.0768	0.2712	0.11814	0.0379	0.126
544.92	0.07391	0.26702	0.11582	0.03582	0.123
545.27	0.07091	0.26277	0.11334	0.03375	0.120
545.63	0.06812	0.25837	0.11082	0.03154	0.117
545.98	0.0653	0.25407	0.10836	0.02937	0.114
546.34	0.06245	0.24976	0.10596	0.02716	0.111
546.69	0.05975	0.24552	0.10379	0.0252	0.109
547.05	0.05709	0.24144	0.10154	0.02298	0.106
547.40	0.05448	0.23726	0.09905	0.02089	0.103
547.76	0.0519	0.23316	0.09662	0.01876	0.100
548.12	0.04947	0.2291	0.09444	0.01677	0.097
548.47	0.0469	0.2251	0.09208	0.01477	0.095
548.83	0.04408	0.22092	0.08967	0.01257	0.092
549.18	0.04159	0.217	0.08766	0.01063	0.089
549.54	0.03916	0.21293	0.08547	0.0088	0.087
549.89	0.03669	0.20891	0.08334	0.00685	0.084
550.25	0.03413	0.20468	0.08074	0.00483	0.081
550.60	0.03156	0.20065	0.07841	0.00273	0.078
550.96	0.02887	0.19662	0.076	0.00068	0.076
551.31	0.02631	0.1925	0.07357	-0.0014	0.073
551.67	0.02384	0.18843	0.07141	-0.0033	0.070
552.02	0.02144	0.18456	0.06938	-0.0052	0.068
552.38	0.01896	0.18051	0.06718	-0.0071	0.065
552.73	0.01672	0.1768	0.06514	-0.0089	0.062
553.09	0.01428	0.17305	0.06304	-0.0108	0.060
553.44	0.0119	0.16921	0.06093	-0.0127	0.057

553.80	0.00945	0.16551	0.05878	-0.0145	0.055
554.15	0.00704	0.16185	0.05672	-0.0164	0.052
554.51	0.00464	0.1581	0.05461	-0.0181	0.050
554.86	0.00228	0.15445	0.05268	-0.0199	0.047
555.21	2.8E-05	0.15083	0.05079	-0.0216	0.045
555.57	-0.0023	0.14722	0.04878	-0.0233	0.043
555.92	-0.0045	0.14357	0.04693	-0.025	0.040
556.28	-0.0068	0.13981	0.04492	-0.0267	0.038
556.63	-0.0092	0.13605	0.04283	-0.0286	0.035
556.99	-0.0116	0.13242	0.04078	-0.0304	0.033
557.34	-0.0138	0.12893	0.03872	-0.032	0.030
557.70	-0.016	0.12551	0.03687	-0.0337	0.028
558.05	-0.0181	0.12225	0.03518	-0.0352	0.026
558.40	-0.0202	0.1188	0.03344	-0.0368	0.024
558.76	-0.0224	0.11541	0.03164	-0.0384	0.022
559.11	-0.0246	0.11201	0.02977	-0.0399	0.019
559.47	-0.0268	0.10864	0.02794	-0.0414	0.017
559.82	-0.0288	0.1054	0.02607	-0.043	0.015
560.17	-0.0311	0.10204	0.02413	-0.0445	0.013
560.53	-0.0332	0.09881	0.02232	-0.046	0.010
560.88	-0.0352	0.09565	0.02073	-0.0475	0.008
561.24	-0.037	0.0926	0.01927	-0.0489	0.007
561.59	-0.039	0.08927	0.01746	-0.0504	0.004
561.94	-0.0408	0.08626	0.01579	-0.0519	0.002
562.30	-0.0429	0.08304	0.01414	-0.0534	0.000
562.65	-0.0449	0.07999	0.01254	-0.0548	-0.002
563.00	-0.0469	0.07701	0.01097	-0.0563	-0.004
563.36	-0.0487	0.07409	0.00938	-0.0579	-0.006
563.71	-0.0504	0.07138	0.00799	-0.0592	-0.008
564.07	-0.0522	0.06853	0.00653	-0.0605	-0.009
564.42	-0.054	0.06568	0.00519	-0.0618	-0.011
564.77	-0.0558	0.06288	0.00369	-0.0632	-0.013
565.13	-0.0574	0.06025	0.00244	-0.0644	-0.015
565.48	-0.0593	0.05739	0.00087	-0.0659	-0.017
565.83	-0.0611	0.05471	-0.0005	-0.0672	-0.019
566.19	-0.0628	0.05215	-0.0019	-0.0685	-0.020
566.54	-0.0643	0.04958	-0.0031	-0.0698	-0.022
566.89	-0.0658	0.04709	-0.0046	-0.071	-0.024
567.25	-0.0674	0.04459	-0.0058	-0.0722	-0.025

567.60	-0.0691	0.04199	-0.0072	-0.0736	-0.027
567.95	-0.0706	0.03944	-0.0084	-0.0747	-0.029
568.31	-0.0721	0.03697	-0.0097	-0.0759	-0.030
568.66	-0.0739	0.03426	-0.0113	-0.0773	-0.032
569.01	-0.0754	0.03172	-0.0126	-0.0785	-0.034
569.36	-0.077	0.02923	-0.0139	-0.0797	-0.035
569.72	-0.0785	0.02696	-0.0153	-0.0808	-0.037
570.07	-0.0799	0.02458	-0.0166	-0.082	-0.038
570.42	-0.0815	0.02213	-0.0179	-0.0832	-0.040
570.78	-0.0829	0.01989	-0.0192	-0.0842	-0.042
571.13	-0.0844	0.01758	-0.0205	-0.0853	-0.043
571.48	-0.0857	0.01541	-0.0217	-0.0864	-0.045
571.83	-0.0872	0.01322	-0.0231	-0.0876	-0.046
572.19	-0.0884	0.01102	-0.0241	-0.0886	-0.048
572.54	-0.0899	0.00868	-0.0254	-0.0897	-0.049
572.89	-0.0911	0.00659	-0.0266	-0.0908	-0.050
573.24	-0.0923	0.00444	-0.0277	-0.0918	-0.052
573.60	-0.0934	0.00231	-0.0288	-0.0927	-0.053
573.95	-0.0947	0.00028	-0.03	-0.0939	-0.055
574.30	-0.0959	-0.0018	-0.031	-0.0949	-0.056
574.65	-0.0973	-0.0039	-0.0321	-0.096	-0.057
575.01	-0.0983	-0.0057	-0.0331	-0.0969	-0.059
575.36	-0.0997	-0.0076	-0.0343	-0.0981	-0.060
575.71	-0.1008	-0.0094	-0.0354	-0.0989	-0.061
576.06	-0.1019	-0.0111	-0.0363	-0.0997	-0.062
576.41	-0.103	-0.0127	-0.0372	-0.1006	-0.063
576.77	-0.1042	-0.0145	-0.0382	-0.1017	-0.065
577.12	-0.1052	-0.0163	-0.0392	-0.1025	-0.066
577.47	-0.1063	-0.018	-0.0402	-0.1035	-0.067
577.82	-0.1074	-0.0196	-0.0409	-0.1043	-0.068
578.17	-0.1084	-0.0213	-0.0418	-0.1051	-0.069
578.53	-0.1094	-0.0229	-0.0425	-0.1059	-0.070
578.88	-0.1104	-0.0245	-0.0433	-0.1066	-0.071
579.23	-0.1112	-0.0259	-0.0438	-0.1073	-0.072
579.58	-0.1124	-0.0274	-0.0448	-0.1082	-0.073
579.93	-0.1134	-0.0288	-0.0455	-0.1089	-0.074
580.28	-0.1145	-0.0304	-0.0465	-0.1097	-0.075
580.64	-0.1155	-0.0319	-0.0473	-0.1105	-0.076
580.99	-0.1165	-0.0332	-0.0481	-0.1112	-0.077

581.34	-0.1175	-0.0346	-0.0489	-0.1119	-0.078
581.69	-0.1185	-0.0359	-0.0498	-0.1126	-0.079
582.04	-0.1194	-0.0372	-0.0505	-0.1134	-0.080
582.39	-0.1204	-0.0386	-0.0513	-0.1141	-0.081
582.75	-0.1211	-0.0398	-0.0519	-0.1146	-0.082
583.10	-0.122	-0.0411	-0.0526	-0.1153	-0.083
583.45	-0.1229	-0.0423	-0.0533	-0.1158	-0.084
583.80	-0.1237	-0.0435	-0.054	-0.1163	-0.084
584.15	-0.1244	-0.0445	-0.0545	-0.1168	-0.085
584.50	-0.1251	-0.0456	-0.055	-0.1174	-0.086
584.85	-0.1258	-0.0466	-0.0555	-0.1178	-0.086
585.20	-0.1265	-0.0477	-0.0563	-0.1184	-0.087
585.55	-0.1273	-0.0487	-0.057	-0.119	-0.088
585.91	-0.128	-0.0496	-0.0577	-0.1195	-0.089
586.26	-0.1289	-0.0507	-0.0583	-0.1201	-0.089
586.61	-0.1297	-0.0519	-0.059	-0.1206	-0.090
586.96	-0.1302	-0.0528	-0.0595	-0.1211	-0.091
587.31	-0.1307	-0.0538	-0.06	-0.1215	-0.091
587.66	-0.1314	-0.0545	-0.0603	-0.1219	-0.092
588.01	-0.132	-0.0555	-0.0608	-0.1224	-0.093
588.36	-0.1326	-0.0564	-0.0614	-0.123	-0.093
588.71	-0.1332	-0.0574	-0.062	-0.1235	-0.094
589.06	-0.1338	-0.0583	-0.0623	-0.1239	-0.095
589.41	-0.1344	-0.0592	-0.0628	-0.1242	-0.095
589.76	-0.135	-0.0601	-0.0631	-0.1247	-0.096
590.11	-0.1356	-0.0608	-0.0636	-0.1251	-0.096
590.46	-0.1362	-0.0616	-0.064	-0.1255	-0.097
590.82	-0.1367	-0.0625	-0.0645	-0.126	-0.097
591.17	-0.1373	-0.0633	-0.065	-0.1265	-0.098
591.52	-0.1379	-0.0642	-0.0654	-0.1269	-0.099
591.87	-0.1385	-0.0651	-0.0659	-0.1272	-0.099
592.22	-0.1391	-0.0658	-0.0664	-0.1276	-0.100
592.57	-0.1396	-0.0665	-0.0667	-0.1279	-0.100
592.92	-0.1399	-0.0673	-0.067	-0.1282	-0.101
593.27	-0.1405	-0.0682	-0.0675	-0.1286	-0.101
593.62	-0.141	-0.0689	-0.068	-0.1289	-0.102
593.97	-0.1414	-0.0695	-0.0684	-0.1292	-0.102
594.32	-0.1419	-0.0702	-0.0689	-0.1295	-0.103
594.67	-0.1424	-0.071	-0.0694	-0.1299	-0.103

595.02	-0.1428	-0.0716	-0.0697	-0.1302	-0.104
595.37	-0.1433	-0.0722	-0.07	-0.1305	-0.104
595.72	-0.1438	-0.0729	-0.0704	-0.1307	-0.104
596.07	-0.1441	-0.0735	-0.0707	-0.1309	-0.105
596.42	-0.1444	-0.074	-0.0709	-0.1311	-0.105
596.77	-0.1448	-0.0745	-0.0714	-0.1314	-0.106
597.12	-0.145	-0.075	-0.0717	-0.1316	-0.106
597.46	-0.1454	-0.0756	-0.0721	-0.1319	-0.106
597.81	-0.1458	-0.0763	-0.0725	-0.1322	-0.107
598.16	-0.146	-0.0765	-0.0726	-0.1324	-0.107
598.51	-0.1464	-0.077	-0.0729	-0.1326	-0.107
598.86	-0.1466	-0.0774	-0.0731	-0.1328	-0.107
599.21	-0.1468	-0.0778	-0.0733	-0.133	-0.108
599.56	-0.1472	-0.0784	-0.0736	-0.1334	-0.108
599.91	-0.1476	-0.0789	-0.0738	-0.1337	-0.109
600.26	-0.1479	-0.0794	-0.074	-0.134	-0.109
600.61	-0.1482	-0.0797	-0.0743	-0.1343	-0.109
600.96	-0.1485	-0.0802	-0.0744	-0.1345	-0.109
601.31	-0.1489	-0.0807	-0.0747	-0.1347	-0.110
601.66	-0.1494	-0.0813	-0.075	-0.1351	-0.110
602.01	-0.1496	-0.0816	-0.0753	-0.1353	-0.110
602.35	-0.1501	-0.0822	-0.0757	-0.1356	-0.111
602.70	-0.1502	-0.0825	-0.076	-0.1358	-0.111
603.05	-0.1505	-0.083	-0.0762	-0.1359	-0.111
603.40	-0.1508	-0.0833	-0.0763	-0.1361	-0.112
603.75	-0.1511	-0.0837	-0.0766	-0.1363	-0.112
604.10	-0.1513	-0.084	-0.0765	-0.1364	-0.112
604.45	-0.1516	-0.0843	-0.0768	-0.1367	-0.112
604.80	-0.1519	-0.0847	-0.0769	-0.137	-0.113
605.15	-0.152	-0.085	-0.0771	-0.1372	-0.113
605.49	-0.1522	-0.0854	-0.0773	-0.1373	-0.113
605.84	-0.1525	-0.0857	-0.0774	-0.1375	-0.113
606.19	-0.1528	-0.086	-0.0778	-0.1376	-0.114
606.54	-0.1529	-0.0862	-0.0779	-0.1377	-0.114
606.89	-0.1529	-0.0863	-0.078	-0.1377	-0.114
607.24	-0.1531	-0.0865	-0.0782	-0.1378	-0.114
607.59	-0.1531	-0.0866	-0.0784	-0.1378	-0.114
607.93	-0.1533	-0.0868	-0.0785	-0.1379	-0.114
608.28	-0.1533	-0.0869	-0.0786	-0.1379	-0.114

608.63	-0.1533	-0.0872	-0.0787	-0.138	-0.114
608.98	-0.1533	-0.0871	-0.0787	-0.1378	-0.114
609.33	-0.1534	-0.0873	-0.0787	-0.1378	-0.114
609.67	-0.1533	-0.0873	-0.0786	-0.1378	-0.114
610.02	-0.1533	-0.0873	-0.0785	-0.1377	-0.114
610.37	-0.1532	-0.0872	-0.0785	-0.1377	-0.114
610.72	-0.1533	-0.0874	-0.0787	-0.1378	-0.114
611.07	-0.1533	-0.0875	-0.0788	-0.1378	-0.114
611.41	-0.1535	-0.0877	-0.0791	-0.1379	-0.115
611.76	-0.1536	-0.0879	-0.0793	-0.138	-0.115
612.11	-0.1535	-0.0879	-0.0793	-0.1378	-0.115
612.46	-0.1536	-0.088	-0.0793	-0.1378	-0.115
612.81	-0.1536	-0.0881	-0.0794	-0.1379	-0.115
613.15	-0.1535	-0.0881	-0.0794	-0.1378	-0.115
613.50	-0.1535	-0.0882	-0.0794	-0.1377	-0.115
613.85	-0.1535	-0.0883	-0.0795	-0.1377	-0.115
614.20	-0.1536	-0.0885	-0.0795	-0.1378	-0.115
614.54	-0.1537	-0.0886	-0.0796	-0.1378	-0.115
614.89	-0.1539	-0.0886	-0.0797	-0.1378	-0.115
615.24	-0.1539	-0.0887	-0.0797	-0.1378	-0.115
615.59	-0.154	-0.0888	-0.0798	-0.1378	-0.115
615.93	-0.154	-0.0888	-0.0798	-0.1378	-0.115
616.28	-0.1542	-0.089	-0.08	-0.138	-0.115
616.63	-0.1543	-0.0892	-0.0802	-0.1381	-0.115
616.98	-0.1545	-0.0895	-0.0804	-0.1382	-0.116
617.32	-0.1546	-0.0898	-0.0806	-0.1384	-0.116
617.67	-0.1548	-0.09	-0.0808	-0.1384	-0.116
618.02	-0.1548	-0.09	-0.0809	-0.1383	-0.116
618.36	-0.1549	-0.0901	-0.0808	-0.1383	-0.116
618.71	-0.1549	-0.0902	-0.0808	-0.1382	-0.116
619.06	-0.1549	-0.0901	-0.0807	-0.1381	-0.116
619.41	-0.155	-0.0903	-0.0808	-0.1382	-0.116
619.75	-0.1551	-0.0903	-0.081	-0.1383	-0.116
620.10	-0.1552	-0.0904	-0.081	-0.1383	-0.116
620.45	-0.1554	-0.0906	-0.0813	-0.1385	-0.116
620.79	-0.1555	-0.0907	-0.0813	-0.1386	-0.117
621.14	-0.1556	-0.091	-0.0815	-0.1388	-0.117
621.49	-0.1557	-0.0912	-0.0817	-0.1389	-0.117
621.83	-0.1558	-0.0914	-0.0818	-0.1389	-0.117

622.18	-0.1558	-0.0916	-0.0818	-0.1391	-0.117
622.53	-0.1558	-0.0917	-0.0818	-0.1392	-0.117
622.87	-0.1559	-0.0919	-0.0819	-0.1393	-0.117
623.22	-0.156	-0.092	-0.0818	-0.1393	-0.117
623.57	-0.1559	-0.0919	-0.0817	-0.1392	-0.117
623.91	-0.1559	-0.092	-0.0817	-0.1392	-0.117
624.26	-0.1558	-0.0919	-0.0816	-0.1392	-0.117
624.60	-0.1558	-0.0919	-0.0816	-0.1393	-0.117
624.95	-0.1558	-0.092	-0.0816	-0.1394	-0.117
625.30	-0.1559	-0.0921	-0.0816	-0.1395	-0.117
625.64	-0.1559	-0.0923	-0.0817	-0.1397	-0.117
625.99	-0.1561	-0.0924	-0.0819	-0.1399	-0.118
626.34	-0.1562	-0.0926	-0.0819	-0.14	-0.118
626.68	-0.1562	-0.0926	-0.0819	-0.1401	-0.118
627.03	-0.1562	-0.0927	-0.0819	-0.1401	-0.118
627.37	-0.1563	-0.0928	-0.0821	-0.1403	-0.118
627.72	-0.1561	-0.0928	-0.0819	-0.1403	-0.118
628.07	-0.1561	-0.0928	-0.0819	-0.1402	-0.118
628.41	-0.1561	-0.0927	-0.0819	-0.1402	-0.118
628.76	-0.1561	-0.0927	-0.0819	-0.1401	-0.118
629.10	-0.156	-0.0927	-0.082	-0.1402	-0.118
629.45	-0.156	-0.0927	-0.0821	-0.1401	-0.118
629.79	-0.1561	-0.0927	-0.0822	-0.1402	-0.118
630.14	-0.1561	-0.0927	-0.0823	-0.1402	-0.118
630.49	-0.1561	-0.0927	-0.0823	-0.1402	-0.118
630.83	-0.1562	-0.0928	-0.0825	-0.1402	-0.118
631.18	-0.1562	-0.0928	-0.0824	-0.1402	-0.118
631.52	-0.1563	-0.0928	-0.0826	-0.1402	-0.118
631.87	-0.1563	-0.0928	-0.0827	-0.1402	-0.118
632.21	-0.1564	-0.0929	-0.0828	-0.1403	-0.118
632.56	-0.1565	-0.0931	-0.083	-0.1404	-0.118
632.90	-0.1564	-0.093	-0.0831	-0.1403	-0.118
633.25	-0.1563	-0.0929	-0.083	-0.14	-0.118
633.59	-0.1563	-0.0928	-0.0831	-0.14	-0.118
633.94	-0.1563	-0.0929	-0.0832	-0.1399	-0.118
634.28	-0.1564	-0.0929	-0.0832	-0.14	-0.118
634.63	-0.1564	-0.0928	-0.0832	-0.1399	-0.118
634.97	-0.1565	-0.093	-0.0834	-0.1401	-0.118
635.32	-0.1565	-0.0929	-0.0835	-0.1401	-0.118

635.66	-0.1565	-0.0929	-0.0834	-0.14	-0.118
636.01	-0.1566	-0.0929	-0.0834	-0.14	-0.118
636.35	-0.1566	-0.0928	-0.0833	-0.1399	-0.118
636.70	-0.1566	-0.0928	-0.0834	-0.1399	-0.118
637.04	-0.1565	-0.0927	-0.0832	-0.1398	-0.118
637.39	-0.1563	-0.0926	-0.0832	-0.1398	-0.118
637.73	-0.1563	-0.0924	-0.0833	-0.1397	-0.118
638.08	-0.1561	-0.0922	-0.0831	-0.1396	-0.118
638.42	-0.1561	-0.0922	-0.0831	-0.1394	-0.118
638.77	-0.1561	-0.0921	-0.083	-0.1394	-0.118
639.11	-0.156	-0.092	-0.083	-0.1393	-0.118
639.46	-0.1559	-0.0919	-0.0828	-0.1393	-0.117
639.80	-0.1558	-0.0917	-0.0827	-0.1392	-0.117
640.14	-0.1557	-0.0915	-0.0825	-0.139	-0.117
640.49	-0.1555	-0.0914	-0.0824	-0.1389	-0.117
640.83	-0.1553	-0.0911	-0.0821	-0.1388	-0.117
641.18	-0.1552	-0.091	-0.0819	-0.1387	-0.117
641.52	-0.1549	-0.0907	-0.0817	-0.1384	-0.116
641.87	-0.1548	-0.0907	-0.0815	-0.1383	-0.116
642.21	-0.1546	-0.0903	-0.0812	-0.138	-0.116
642.55	-0.1545	-0.0901	-0.081	-0.1378	-0.116
642.90	-0.1541	-0.0899	-0.0808	-0.1375	-0.116
643.24	-0.154	-0.0898	-0.0807	-0.1375	-0.116
643.59	-0.1538	-0.0896	-0.0804	-0.1373	-0.115
643.93	-0.1535	-0.0893	-0.0801	-0.137	-0.115
644.27	-0.1532	-0.0891	-0.0799	-0.1367	-0.115
644.62	-0.153	-0.089	-0.0796	-0.1364	-0.115
644.96	-0.1528	-0.0889	-0.0793	-0.1363	-0.114
645.31	-0.1528	-0.089	-0.0794	-0.1363	-0.114
645.65	-0.1525	-0.0888	-0.0792	-0.1361	-0.114
645.99	-0.1522	-0.0886	-0.0789	-0.1359	-0.114
646.34	-0.1522	-0.0884	-0.0787	-0.1357	-0.114
646.68	-0.1518	-0.0881	-0.0784	-0.1354	-0.113
647.02	-0.1516	-0.0879	-0.078	-0.1351	-0.113
647.37	-0.1515	-0.0878	-0.0779	-0.135	-0.113
647.71	-0.1516	-0.0878	-0.0779	-0.1351	-0.113
648.05	-0.1515	-0.0878	-0.0778	-0.1349	-0.113
648.40	-0.1513	-0.0877	-0.0778	-0.1348	-0.113
648.74	-0.1512	-0.0875	-0.0776	-0.1348	-0.113

649.08	-0.1509	-0.0872	-0.0774	-0.1344	-0.112
649.43	-0.1508	-0.0873	-0.0774	-0.1342	-0.112
649.77	-0.1507	-0.0872	-0.0772	-0.1342	-0.112
650.11	-0.1507	-0.0874	-0.0772	-0.1343	-0.112
650.46	-0.1505	-0.0871	-0.0769	-0.134	-0.112
650.80	-0.1506	-0.0871	-0.0769	-0.1339	-0.112
651.14	-0.1506	-0.087	-0.077	-0.1338	-0.112
651.49	-0.1507	-0.0871	-0.0771	-0.1339	-0.112
651.83	-0.1508	-0.0871	-0.0772	-0.134	-0.112
652.17	-0.1507	-0.0868	-0.0772	-0.1339	-0.112
652.51	-0.1506	-0.0865	-0.077	-0.1336	-0.112
652.86	-0.1506	-0.0866	-0.0769	-0.1336	-0.112
653.20	-0.1505	-0.0865	-0.0769	-0.1336	-0.112
653.54	-0.1504	-0.0865	-0.077	-0.1335	-0.112
653.88	-0.1506	-0.0865	-0.0771	-0.1336	-0.112
654.23	-0.1507	-0.0865	-0.0771	-0.1335	-0.112
654.57	-0.1506	-0.0864	-0.077	-0.1333	-0.112
654.91	-0.1503	-0.086	-0.0768	-0.1331	-0.112
655.26	-0.1504	-0.086	-0.0769	-0.1331	-0.112
655.60	-0.1504	-0.0861	-0.077	-0.1331	-0.112
655.94	-0.1504	-0.0862	-0.0771	-0.1331	-0.112
656.28	-0.1504	-0.0862	-0.077	-0.1332	-0.112
656.62	-0.1504	-0.0862	-0.077	-0.1332	-0.112
656.97	-0.1503	-0.0861	-0.0771	-0.1331	-0.112
657.31	-0.1502	-0.086	-0.0772	-0.133	-0.112
657.65	-0.1502	-0.086	-0.0773	-0.133	-0.112
657.99	-0.1501	-0.086	-0.0774	-0.1329	-0.112
658.34	-0.1501	-0.0861	-0.0775	-0.133	-0.112
658.68	-0.15	-0.0859	-0.0773	-0.1328	-0.112
659.02	-0.1499	-0.0857	-0.0772	-0.1326	-0.111
659.36	-0.1498	-0.0857	-0.0771	-0.1325	-0.111
659.70	-0.1496	-0.0856	-0.0771	-0.1326	-0.111
660.05	-0.1497	-0.0856	-0.0772	-0.1327	-0.111
660.39	-0.1498	-0.0856	-0.0772	-0.1328	-0.111
660.73	-0.1496	-0.0855	-0.0769	-0.1327	-0.111
661.07	-0.1495	-0.0855	-0.077	-0.1326	-0.111
661.41	-0.1494	-0.0855	-0.0771	-0.1328	-0.111
661.75	-0.1493	-0.0854	-0.0771	-0.1326	-0.111
662.10	-0.1495	-0.0856	-0.0772	-0.1329	-0.111

662.44	-0.1494	-0.0854	-0.077	-0.1328	-0.111
662.78	-0.1494	-0.0852	-0.077	-0.1328	-0.111
663.12	-0.1493	-0.0851	-0.0769	-0.1328	-0.111
663.46	-0.1493	-0.085	-0.0768	-0.1328	-0.111
663.80	-0.1492	-0.0848	-0.0766	-0.1328	-0.111
664.14	-0.1494	-0.0848	-0.0766	-0.1328	-0.111
664.49	-0.1493	-0.0845	-0.0764	-0.1327	-0.111
664.83	-0.1493	-0.0845	-0.0763	-0.1327	-0.111
665.17	-0.1492	-0.0844	-0.0762	-0.1327	-0.111
665.51	-0.1491	-0.0843	-0.0759	-0.1326	-0.110
665.85	-0.149	-0.0842	-0.0759	-0.1326	-0.110
666.19	-0.1491	-0.0841	-0.0758	-0.1327	-0.110
666.53	-0.1491	-0.0841	-0.0757	-0.1328	-0.110
666.87	-0.1493	-0.0842	-0.0757	-0.1327	-0.110
667.21	-0.149	-0.084	-0.0755	-0.1326	-0.110
667.56	-0.1489	-0.0839	-0.0753	-0.1324	-0.110
667.90	-0.1489	-0.0837	-0.0753	-0.1324	-0.110
668.24	-0.1489	-0.0836	-0.0752	-0.1324	-0.110
668.58	-0.1489	-0.0835	-0.075	-0.1324	-0.110
668.92	-0.149	-0.0836	-0.0751	-0.1325	-0.110
669.26	-0.1489	-0.0835	-0.075	-0.1324	-0.110
669.60	-0.1487	-0.0834	-0.075	-0.1322	-0.110
669.94	-0.1486	-0.0833	-0.0748	-0.1322	-0.110
670.28	-0.1486	-0.0831	-0.0746	-0.132	-0.110
670.62	-0.1485	-0.083	-0.0746	-0.1318	-0.109
670.96	-0.1485	-0.0829	-0.0745	-0.1317	-0.109
671.30	-0.1484	-0.0828	-0.0745	-0.1317	-0.109
671.64	-0.1482	-0.0827	-0.0744	-0.1316	-0.109
671.98	-0.1482	-0.0826	-0.0744	-0.1316	-0.109
672.32	-0.1481	-0.0823	-0.0741	-0.1315	-0.109
672.66	-0.148	-0.0822	-0.0741	-0.1314	-0.109
673.00	-0.148	-0.0821	-0.074	-0.1313	-0.109
673.34	-0.1477	-0.082	-0.0737	-0.1311	-0.109
673.68	-0.1476	-0.0819	-0.0736	-0.1309	-0.109
674.02	-0.1476	-0.0818	-0.0736	-0.1309	-0.108
674.36	-0.1477	-0.0819	-0.0738	-0.131	-0.109
674.70	-0.1477	-0.082	-0.0738	-0.131	-0.109
675.04	-0.1476	-0.0819	-0.0738	-0.131	-0.109
675.38	-0.1474	-0.0819	-0.0736	-0.1309	-0.108

675.72	-0.1473	-0.0817	-0.0735	-0.1307	-0.108
676.06	-0.1471	-0.0816	-0.0732	-0.1306	-0.108
676.40	-0.1469	-0.0814	-0.0729	-0.1304	-0.108
676.74	-0.147	-0.0815	-0.0729	-0.1305	-0.108
677.08	-0.1469	-0.0813	-0.0727	-0.1304	-0.108
677.42	-0.1467	-0.0812	-0.0726	-0.1303	-0.108
677.76	-0.1467	-0.0812	-0.0725	-0.1302	-0.108
678.10	-0.1466	-0.0811	-0.0724	-0.1302	-0.108
678.44	-0.1466	-0.0812	-0.0724	-0.1302	-0.108
678.78	-0.1466	-0.0812	-0.0724	-0.1302	-0.108
679.12	-0.1465	-0.0811	-0.0722	-0.13	-0.107
679.46	-0.1464	-0.0812	-0.0722	-0.13	-0.107
679.80	-0.1464	-0.0813	-0.0721	-0.1302	-0.108
680.14	-0.1463	-0.0814	-0.0721	-0.1302	-0.108
680.48	-0.1463	-0.0812	-0.0722	-0.1302	-0.107
680.82	-0.1464	-0.0812	-0.0722	-0.1303	-0.108
681.16	-0.1462	-0.081	-0.072	-0.1301	-0.107
681.50	-0.1459	-0.0808	-0.0716	-0.1299	-0.107
681.83	-0.1457	-0.0807	-0.0715	-0.1298	-0.107
682.17	-0.1455	-0.0805	-0.0714	-0.1297	-0.107
682.51	-0.1453	-0.0802	-0.0713	-0.1295	-0.107
682.85	-0.1451	-0.08	-0.0712	-0.1293	-0.106
683.19	-0.1452	-0.0798	-0.0712	-0.1294	-0.106
683.53	-0.145	-0.0798	-0.0711	-0.1292	-0.106
683.87	-0.1447	-0.0794	-0.071	-0.129	-0.106
684.21	-0.1446	-0.0793	-0.0709	-0.1289	-0.106
684.55	-0.1446	-0.0794	-0.0709	-0.1289	-0.106
684.88	-0.1444	-0.0794	-0.0709	-0.1289	-0.106
685.22	-0.1442	-0.0793	-0.0708	-0.1288	-0.106
685.56	-0.1441	-0.0791	-0.0705	-0.1287	-0.106
685.90	-0.144	-0.0789	-0.0703	-0.1286	-0.105
686.24	-0.144	-0.0788	-0.0702	-0.1286	-0.105
686.58	-0.1441	-0.0786	-0.0702	-0.1286	-0.105
686.92	-0.1439	-0.0784	-0.0702	-0.1285	-0.105
687.25	-0.1437	-0.0782	-0.07	-0.1282	-0.105
687.59	-0.1437	-0.0783	-0.0699	-0.1283	-0.105
687.93	-0.1436	-0.0782	-0.0699	-0.1283	-0.105
688.27	-0.1436	-0.0781	-0.0699	-0.1283	-0.105
688.61	-0.1437	-0.0781	-0.0699	-0.1284	-0.105

688.94	-0.1438	-0.078	-0.0698	-0.1283	-0.105
689.28	-0.1437	-0.078	-0.0698	-0.1283	-0.105
689.62	-0.1438	-0.0782	-0.07	-0.1285	-0.105
689.96	-0.1439	-0.0783	-0.07	-0.1287	-0.105
690.30	-0.1438	-0.0784	-0.0701	-0.1287	-0.105
690.64	-0.144	-0.0786	-0.0703	-0.1289	-0.105
690.97	-0.1441	-0.0788	-0.0703	-0.129	-0.106
691.31	-0.1442	-0.0789	-0.0704	-0.1291	-0.106
691.65	-0.1443	-0.0788	-0.0704	-0.1291	-0.106
691.99	-0.1444	-0.0787	-0.0703	-0.1292	-0.106
692.32	-0.1446	-0.0787	-0.0704	-0.1293	-0.106
692.66	-0.1448	-0.0789	-0.0706	-0.1295	-0.106
693.00	-0.1449	-0.0789	-0.0708	-0.1297	-0.106
693.34	-0.145	-0.0791	-0.071	-0.1298	-0.106
693.67	-0.145	-0.079	-0.0712	-0.1298	-0.106
694.01	-0.145	-0.0791	-0.0712	-0.1299	-0.106
694.35	-0.1453	-0.0791	-0.0715	-0.1302	-0.107
694.69	-0.1454	-0.0792	-0.0716	-0.1302	-0.107
695.02	-0.1455	-0.0792	-0.0717	-0.1302	-0.107
695.36	-0.1456	-0.0794	-0.0718	-0.1303	-0.107
695.70	-0.1456	-0.0796	-0.0719	-0.1304	-0.107
696.04	-0.1456	-0.0794	-0.072	-0.1304	-0.107
696.37	-0.1458	-0.0794	-0.0722	-0.1305	-0.107
696.71	-0.1459	-0.0795	-0.0723	-0.1306	-0.107
697.05	-0.146	-0.0796	-0.0724	-0.1307	-0.107
697.38	-0.1463	-0.0797	-0.0726	-0.1308	-0.107
697.72	-0.1464	-0.0795	-0.0725	-0.1308	-0.107
698.06	-0.1464	-0.0796	-0.0725	-0.1308	-0.107
698.40	-0.1465	-0.0797	-0.0726	-0.1307	-0.107
698.73	-0.1467	-0.0798	-0.0728	-0.1309	-0.108
699.07	-0.1467	-0.0799	-0.0728	-0.131	-0.108
699.41	-0.1467	-0.08	-0.0729	-0.1309	-0.108
699.74	-0.1466	-0.08	-0.0728	-0.1308	-0.108
700.08	-0.1468	-0.08	-0.0728	-0.1308	-0.108
700.42	-0.1468	-0.08	-0.0728	-0.1307	-0.108
700.75	-0.1467	-0.08	-0.0727	-0.1306	-0.108
701.09	-0.1468	-0.08	-0.0725	-0.1305	-0.107
701.43	-0.1467	-0.08	-0.0726	-0.1305	-0.107
701.76	-0.1466	-0.0799	-0.0725	-0.1305	-0.107

702.10	-0.1466	-0.0799	-0.0724	-0.1305	-0.107
702.43	-0.1466	-0.0798	-0.0724	-0.1305	-0.107
702.77	-0.1465	-0.0795	-0.0722	-0.1303	-0.107
703.11	-0.1463	-0.0793	-0.0719	-0.13	-0.107
703.44	-0.1463	-0.0792	-0.0717	-0.1299	-0.107
703.78	-0.1461	-0.0789	-0.0714	-0.1296	-0.106
704.12	-0.146	-0.0788	-0.0713	-0.1294	-0.106
704.45	-0.1459	-0.0786	-0.0712	-0.1293	-0.106
704.79	-0.1456	-0.0784	-0.0711	-0.1291	-0.106
705.12	-0.1455	-0.0783	-0.0712	-0.129	-0.106
705.46	-0.1453	-0.0779	-0.0709	-0.129	-0.106
705.80	-0.1452	-0.0779	-0.0707	-0.1287	-0.106
706.13	-0.1449	-0.0775	-0.0705	-0.1285	-0.105
706.47	-0.1447	-0.0773	-0.0704	-0.1283	-0.105
706.80	-0.1445	-0.077	-0.0703	-0.1282	-0.105
707.14	-0.1442	-0.0767	-0.0701	-0.1279	-0.105
707.47	-0.144	-0.0767	-0.0701	-0.1277	-0.105
707.81	-0.1438	-0.0765	-0.0699	-0.1275	-0.104
708.15	-0.1436	-0.0762	-0.0697	-0.1272	-0.104
708.48	-0.1433	-0.0759	-0.0694	-0.1268	-0.104
708.82	-0.1432	-0.0757	-0.0692	-0.1266	-0.104
709.15	-0.1429	-0.0755	-0.0692	-0.1264	-0.103
709.49	-0.1426	-0.0753	-0.0689	-0.1262	-0.103
709.82	-0.1424	-0.0752	-0.0689	-0.1262	-0.103
710.16	-0.1425	-0.0753	-0.069	-0.1263	-0.103
710.49	-0.1422	-0.075	-0.069	-0.1261	-0.103
710.83	-0.142	-0.075	-0.0689	-0.1261	-0.103
711.16	-0.1417	-0.0746	-0.0686	-0.1258	-0.103
711.50	-0.1414	-0.0743	-0.0683	-0.1256	-0.102
711.83	-0.1412	-0.074	-0.0682	-0.1254	-0.102
712.17	-0.1409	-0.0738	-0.0681	-0.1252	-0.102
712.50	-0.1408	-0.0738	-0.0682	-0.125	-0.102
712.84	-0.1404	-0.0735	-0.068	-0.1247	-0.102
713.17	-0.1404	-0.0734	-0.0681	-0.1246	-0.102
713.51	-0.1403	-0.0734	-0.0681	-0.1244	-0.102
713.84	-0.14	-0.0732	-0.0679	-0.1242	-0.101
714.18	-0.1399	-0.0731	-0.0678	-0.1241	-0.101
714.51	-0.1395	-0.0725	-0.0675	-0.1237	-0.101
714.85	-0.1393	-0.0723	-0.0674	-0.1236	-0.101

715.18	-0.1393	-0.0724	-0.0676	-0.1236	-0.101
715.52	-0.1391	-0.0723	-0.0674	-0.1235	-0.101
715.85	-0.1389	-0.0723	-0.0674	-0.1235	-0.101
716.19	-0.1387	-0.072	-0.0672	-0.1231	-0.100
716.52	-0.1386	-0.0717	-0.0672	-0.1228	-0.100
716.86	-0.1385	-0.0715	-0.0671	-0.1225	-0.100
717.19	-0.1382	-0.0713	-0.067	-0.1222	-0.100
717.52	-0.1384	-0.0715	-0.067	-0.1223	-0.100
717.86	-0.1383	-0.0713	-0.067	-0.1221	-0.100
718.19	-0.1381	-0.0711	-0.0669	-0.1218	-0.099
718.53	-0.138	-0.071	-0.0669	-0.1217	-0.099
718.86	-0.1378	-0.0707	-0.0666	-0.1215	-0.099
719.20	-0.1379	-0.0705	-0.0665	-0.1215	-0.099
719.53	-0.1378	-0.0705	-0.0665	-0.1215	-0.099
719.86	-0.1378	-0.0701	-0.0662	-0.1213	-0.099
720.20	-0.1376	-0.0701	-0.0661	-0.1211	-0.099
720.53	-0.1376	-0.07	-0.0659	-0.1211	-0.099
720.87	-0.1374	-0.0697	-0.0656	-0.1209	-0.098
721.20	-0.1373	-0.0697	-0.0655	-0.1209	-0.098
721.53	-0.1373	-0.0696	-0.0654	-0.1209	-0.098
721.87	-0.1373	-0.0697	-0.0654	-0.121	-0.098
722.20	-0.1371	-0.0694	-0.0652	-0.1206	-0.098
722.53	-0.1371	-0.0694	-0.0652	-0.1207	-0.098
722.87	-0.1372	-0.0692	-0.065	-0.1205	-0.098
723.20	-0.1374	-0.0692	-0.065	-0.1206	-0.098
723.54	-0.1374	-0.0692	-0.065	-0.1207	-0.098
723.87	-0.1374	-0.0691	-0.0649	-0.1206	-0.098
724.20	-0.1374	-0.0691	-0.0648	-0.1206	-0.098
724.54	-0.1371	-0.0688	-0.0644	-0.1204	-0.098
724.87	-0.1372	-0.0688	-0.0644	-0.1203	-0.098
725.20	-0.1374	-0.069	-0.0645	-0.1206	-0.098
725.54	-0.1373	-0.0687	-0.0643	-0.1204	-0.098
725.87	-0.1373	-0.069	-0.0645	-0.1204	-0.098
726.20	-0.1371	-0.0688	-0.0643	-0.1203	-0.098
726.54	-0.137	-0.0687	-0.0641	-0.12	-0.097
726.87	-0.1371	-0.0689	-0.0643	-0.1201	-0.098
727.20	-0.1371	-0.0686	-0.0641	-0.1201	-0.097
727.53	-0.137	-0.0685	-0.0639	-0.12	-0.097
727.87	-0.1372	-0.0688	-0.0641	-0.12	-0.098

728.20	-0.1371	-0.0686	-0.064	-0.1197	-0.097
728.53	-0.1371	-0.0686	-0.0638	-0.1197	-0.097
728.87	-0.1369	-0.0685	-0.0637	-0.1195	-0.097
729.20	-0.137	-0.0686	-0.0638	-0.1196	-0.097
729.53	-0.1369	-0.0683	-0.0636	-0.1194	-0.097
729.86	-0.1367	-0.0681	-0.0635	-0.1192	-0.097
730.20	-0.1366	-0.068	-0.0633	-0.1191	-0.097
730.53	-0.1365	-0.0677	-0.0631	-0.1189	-0.097
730.86	-0.1365	-0.0677	-0.0631	-0.1189	-0.097
731.19	-0.1364	-0.0673	-0.063	-0.1188	-0.096
731.53	-0.1362	-0.0672	-0.0631	-0.1186	-0.096
731.86	-0.1361	-0.0671	-0.063	-0.1187	-0.096
732.19	-0.136	-0.0669	-0.0628	-0.1184	-0.096
732.52	-0.1362	-0.067	-0.0627	-0.1185	-0.096
732.86	-0.136	-0.0666	-0.0624	-0.1183	-0.096
733.19	-0.136	-0.0665	-0.0624	-0.1182	-0.096
733.52	-0.1359	-0.0662	-0.0622	-0.1182	-0.096
733.85	-0.1359	-0.066	-0.062	-0.118	-0.095
734.18	-0.136	-0.0661	-0.0622	-0.1182	-0.096
734.52	-0.136	-0.0659	-0.0624	-0.1181	-0.096
734.85	-0.1359	-0.0657	-0.0623	-0.1181	-0.096
735.18	-0.1358	-0.0655	-0.0621	-0.1182	-0.095
735.51	-0.1359	-0.0654	-0.0622	-0.1182	-0.095
735.84	-0.1361	-0.0655	-0.0624	-0.1184	-0.096
736.18	-0.1358	-0.0652	-0.0621	-0.1182	-0.095
736.51	-0.1359	-0.0653	-0.0622	-0.1183	-0.095
736.84	-0.1358	-0.0653	-0.0622	-0.1182	-0.095
737.17	-0.1359	-0.0655	-0.0624	-0.1185	-0.096
737.50	-0.1359	-0.0655	-0.0625	-0.1186	-0.096
737.83	-0.1358	-0.0655	-0.0625	-0.1187	-0.096
738.17	-0.1358	-0.0654	-0.0625	-0.1187	-0.096
738.50	-0.1361	-0.0654	-0.0625	-0.1187	-0.096
738.83	-0.1359	-0.0653	-0.0622	-0.1185	-0.095
739.16	-0.1359	-0.0654	-0.0623	-0.1186	-0.096
739.49	-0.1355	-0.0649	-0.062	-0.1182	-0.095
739.82	-0.1357	-0.065	-0.0621	-0.1184	-0.095
740.15	-0.1356	-0.065	-0.062	-0.1183	-0.095
740.49	-0.1356	-0.0651	-0.0623	-0.1185	-0.095
740.82	-0.1352	-0.0649	-0.062	-0.1184	-0.095

741.15	-0.1351	-0.0648	-0.062	-0.1183	-0.095
741.48	-0.135	-0.0648	-0.0617	-0.1182	-0.095
741.81	-0.1349	-0.0646	-0.0614	-0.1181	-0.095
742.14	-0.135	-0.0647	-0.0614	-0.1178	-0.095
742.47	-0.135	-0.0647	-0.0614	-0.1179	-0.095
742.80	-0.1349	-0.0644	-0.0612	-0.1178	-0.095
743.13	-0.1349	-0.0644	-0.0613	-0.1179	-0.095
743.46	-0.1349	-0.0641	-0.0613	-0.1178	-0.095
743.80	-0.135	-0.064	-0.0613	-0.1178	-0.095
744.13	-0.1345	-0.0636	-0.0611	-0.1175	-0.094
744.46	-0.1347	-0.0637	-0.0611	-0.1174	-0.094
744.79	-0.1343	-0.0634	-0.0607	-0.1172	-0.094
745.12	-0.1344	-0.0637	-0.0607	-0.1171	-0.094
745.45	-0.1339	-0.0633	-0.0603	-0.1169	-0.094
745.78	-0.1338	-0.063	-0.0602	-0.1169	-0.093
746.11	-0.1332	-0.0626	-0.06	-0.1165	-0.093
746.44	-0.1335	-0.0631	-0.0604	-0.1167	-0.093
746.77	-0.1332	-0.063	-0.0601	-0.1165	-0.093
747.10	-0.1328	-0.0628	-0.0598	-0.1162	-0.093
747.43	-0.1327	-0.0626	-0.0596	-0.1157	-0.093
747.76	-0.1325	-0.0626	-0.0597	-0.1159	-0.093
748.09	-0.1323	-0.0621	-0.0595	-0.1156	-0.092
748.42	-0.1322	-0.062	-0.0596	-0.1153	-0.092
748.75	-0.1319	-0.062	-0.0597	-0.1153	-0.092
749.08	-0.1316	-0.0618	-0.0596	-0.1154	-0.092
749.41	-0.1311	-0.0614	-0.0591	-0.1149	-0.092
749.74	-0.1309	-0.0615	-0.0589	-0.1147	-0.092
750.07	-0.1308	-0.0613	-0.0588	-0.1145	-0.091
750.40	-0.1307	-0.0612	-0.0586	-0.1144	-0.091
750.73	-0.1307	-0.0613	-0.0587	-0.1142	-0.091
751.06	-0.1306	-0.061	-0.0585	-0.114	-0.091
751.39	-0.1301	-0.0604	-0.0579	-0.1135	-0.090
751.72	-0.1301	-0.0606	-0.058	-0.1135	-0.091
752.05	-0.1299	-0.0603	-0.0577	-0.1134	-0.090
752.38	-0.1298	-0.0602	-0.0577	-0.1135	-0.090
752.71	-0.1297	-0.0602	-0.0578	-0.1133	-0.090
753.04	-0.1301	-0.0602	-0.0577	-0.1134	-0.090
753.37	-0.1299	-0.06	-0.0574	-0.1128	-0.090
753.70	-0.1299	-0.0598	-0.0574	-0.1127	-0.090

754.03	-0.1301	-0.0598	-0.0576	-0.1126	-0.090
754.36	-0.13	-0.0598	-0.0578	-0.1128	-0.090
754.68	-0.13	-0.0595	-0.0578	-0.1122	-0.090
755.01	-0.1301	-0.0598	-0.0578	-0.1121	-0.090
755.34	-0.13	-0.0599	-0.0577	-0.1121	-0.090
755.67	-0.1305	-0.0599	-0.0578	-0.1121	-0.090
756.00	-0.1305	-0.0599	-0.0579	-0.1121	-0.090
756.33	-0.1305	-0.06	-0.0582	-0.1122	-0.090
756.66	-0.1305	-0.0598	-0.0581	-0.1118	-0.090
756.99	-0.1306	-0.06	-0.0584	-0.1119	-0.090
757.32	-0.1305	-0.06	-0.0583	-0.1116	-0.090
757.65	-0.1302	-0.06	-0.0579	-0.1115	-0.090
757.97	-0.1303	-0.0602	-0.0576	-0.1116	-0.090
758.30	-0.1305	-0.0607	-0.0577	-0.1118	-0.090
758.63	-0.1305	-0.0605	-0.0578	-0.1116	-0.090
758.96	-0.1303	-0.0605	-0.0579	-0.1113	-0.090
759.29	-0.1307	-0.0608	-0.058	-0.1112	-0.090
759.62	-0.1306	-0.0609	-0.0577	-0.1108	-0.090
759.95	-0.1304	-0.061	-0.0576	-0.111	-0.090
760.28	-0.1304	-0.0606	-0.0575	-0.1114	-0.090
760.60	-0.1305	-0.0604	-0.0573	-0.1115	-0.090
760.93	-0.1308	-0.0605	-0.0573	-0.1117	-0.090
761.26	-0.1306	-0.0599	-0.0564	-0.1111	-0.090
761.59	-0.1308	-0.0603	-0.0563	-0.1115	-0.090
761.92	-0.1306	-0.0601	-0.0557	-0.1116	-0.090
762.24	-0.1306	-0.0599	-0.0555	-0.1111	-0.089
762.57	-0.1303	-0.0598	-0.0553	-0.1108	-0.089
762.90	-0.1302	-0.0602	-0.0554	-0.1111	-0.089
763.23	-0.1304	-0.0601	-0.0553	-0.1113	-0.089
763.56	-0.1301	-0.0595	-0.055	-0.1113	-0.089
763.89	-0.13	-0.059	-0.0545	-0.1113	-0.089
764.21	-0.1297	-0.0584	-0.054	-0.1109	-0.088
764.54	-0.1299	-0.0581	-0.0541	-0.1108	-0.088
764.87	-0.1299	-0.0578	-0.0543	-0.111	-0.088
765.20	-0.1296	-0.0575	-0.0542	-0.1108	-0.088
765.52	-0.1296	-0.057	-0.0537	-0.1102	-0.088
765.85	-0.1297	-0.057	-0.0536	-0.1102	-0.088
766.18	-0.1294	-0.057	-0.054	-0.1101	-0.088
766.51	-0.1298	-0.057	-0.0545	-0.1106	-0.088

766.83	-0.1299	-0.057	-0.0544	-0.1104	-0.088
767.16	-0.1298	-0.0572	-0.0545	-0.1101	-0.088
767.49	-0.1295	-0.0576	-0.0546	-0.1099	-0.088
767.82	-0.1292	-0.0575	-0.0542	-0.1097	-0.088
768.14	-0.1294	-0.0577	-0.0548	-0.1098	-0.088
768.47	-0.1297	-0.0573	-0.0548	-0.1097	-0.088
768.80	-0.1295	-0.0567	-0.0548	-0.1097	-0.088
769.13	-0.1295	-0.0568	-0.055	-0.1101	-0.088
769.45	-0.1293	-0.0564	-0.0551	-0.1102	-0.088
769.78	-0.1294	-0.0558	-0.0551	-0.11	-0.088
770.11	-0.1295	-0.056	-0.0549	-0.1098	-0.088
770.43	-0.13	-0.0566	-0.0557	-0.1101	-0.088
770.76	-0.1298	-0.0563	-0.0554	-0.1093	-0.088
771.09	-0.1303	-0.0567	-0.0558	-0.11	-0.088
771.42	-0.1306	-0.0567	-0.0564	-0.1102	-0.088
771.74	-0.1299	-0.0561	-0.056	-0.1094	-0.088
772.07	-0.1304	-0.0562	-0.0565	-0.1096	-0.088
772.40	-0.1302	-0.0567	-0.0565	-0.1097	-0.088
772.72	-0.1301	-0.056	-0.0565	-0.1096	-0.088
773.05	-0.1301	-0.0551	-0.0565	-0.1094	-0.088
773.38	-0.1297	-0.0551	-0.0562	-0.1093	-0.088
773.70	-0.1299	-0.055	-0.0567	-0.1094	-0.088
774.03	-0.1298	-0.0551	-0.0561	-0.1091	-0.088
774.36	-0.1298	-0.0547	-0.0566	-0.1093	-0.088
774.68	-0.1299	-0.0541	-0.0561	-0.1084	-0.087
775.01	-0.1292	-0.0535	-0.0556	-0.1081	-0.087
775.33	-0.1289	-0.0531	-0.0554	-0.1078	-0.086
775.66	-0.129	-0.0537	-0.0555	-0.1075	-0.086
775.99	-0.1286	-0.053	-0.0557	-0.107	-0.086
776.31	-0.1292	-0.0529	-0.0554	-0.1072	-0.086
776.64	-0.1285	-0.0526	-0.0545	-0.1066	-0.086
776.97	-0.1276	-0.0522	-0.054	-0.1058	-0.085
777.29	-0.1268	-0.0508	-0.052	-0.1046	-0.084
777.62	-0.1262	-0.0505	-0.0514	-0.1045	-0.083
777.94	-0.1256	-0.0502	-0.0509	-0.1043	-0.083
778.27	-0.1239	-0.0492	-0.0488	-0.1035	-0.081
778.60	-0.1243	-0.0491	-0.0485	-0.1029	-0.081
778.92	-0.123	-0.0485	-0.0478	-0.1016	-0.080
779.25	-0.1237	-0.0477	-0.0478	-0.1018	-0.080

779.57	-0.1221	-0.0471	-0.0463	-0.1009	-0.079
779.90	-0.1219	-0.048	-0.0457	-0.101	-0.079
780.22	-0.1217	-0.0475	-0.0448	-0.1003	-0.079
780.55	-0.1209	-0.0468	-0.0435	-0.0996	-0.078
780.88	-0.1193	-0.045	-0.0424	-0.0987	-0.076
781.20	-0.1181	-0.0446	-0.0417	-0.0975	-0.075
781.53	-0.1174	-0.0443	-0.0421	-0.0983	-0.076
781.85	-0.1177	-0.0445	-0.0427	-0.098	-0.076
782.18	-0.1168	-0.044	-0.0428	-0.0978	-0.075
782.50	-0.1166	-0.0432	-0.0424	-0.0973	-0.075
782.83	-0.1149	-0.0426	-0.0407	-0.0961	-0.074
783.15	-0.1142	-0.0425	-0.0406	-0.0949	-0.073
783.48	-0.114	-0.0418	-0.0405	-0.0946	-0.073
783.80	-0.1134	-0.0407	-0.0389	-0.0944	-0.072
784.13	-0.1125	-0.0407	-0.0391	-0.094	-0.072
784.45	-0.1113	-0.0403	-0.0387	-0.094	-0.071
784.78	-0.1095	-0.0393	-0.0378	-0.0919	-0.070
785.10	-0.1095	-0.0387	-0.0381	-0.0908	-0.069
785.43	-0.1085	-0.0387	-0.038	-0.0908	-0.069
785.75	-0.1088	-0.0383	-0.0379	-0.0917	-0.069
786.08	-0.1061	-0.0368	-0.0359	-0.0896	-0.067
786.40	-0.1069	-0.0361	-0.0363	-0.0897	-0.067
786.73	-0.1067	-0.036	-0.0359	-0.0883	-0.067
787.05	-0.1049	-0.0347	-0.0361	-0.0879	-0.066
787.38	-0.1041	-0.0342	-0.0351	-0.0856	-0.065
787.70	-0.1052	-0.0344	-0.0358	-0.0867	-0.066
788.03	-0.1067	-0.0355	-0.0356	-0.087	-0.066
788.35	-0.1053	-0.0345	-0.034	-0.085	-0.065
788.67	-0.1052	-0.0349	-0.0337	-0.0862	-0.065
789.00	-0.1051	-0.0338	-0.0322	-0.0849	-0.064
789.32	-0.1039	-0.0332	-0.032	-0.0842	-0.063
789.65	-0.1039	-0.0333	-0.0313	-0.0845	-0.063
789.97	-0.1017	-0.0305	-0.0289	-0.0834	-0.061
790.30	-0.1005	-0.0307	-0.0288	-0.0817	-0.060
790.62	-0.1005	-0.0313	-0.0296	-0.0834	-0.061
790.94	-0.1005	-0.0306	-0.0292	-0.0833	-0.061
791.27	-0.0998	-0.0304	-0.0288	-0.0827	-0.060
791.59	-0.1006	-0.0295	-0.0281	-0.0837	-0.060
791.92	-0.1018	-0.0304	-0.0278	-0.0842	-0.061

792.24	-0.1012	-0.0288	-0.0268	-0.0826	-0.060
792.56	-0.0999	-0.0271	-0.0241	-0.0812	-0.058
792.89	-0.1006	-0.027	-0.0245	-0.0828	-0.059
793.21	-0.1008	-0.0274	-0.0246	-0.0833	-0.059
793.53	-0.0996	-0.0261	-0.0229	-0.0823	-0.058
793.86	-0.0995	-0.0253	-0.0206	-0.0816	-0.057
794.18	-0.0996	-0.0246	-0.0212	-0.0844	-0.057
794.51	-0.0989	-0.0246	-0.0203	-0.0836	-0.057
794.83	-0.0966	-0.023	-0.0189	-0.0824	-0.055
795.15	-0.0967	-0.0234	-0.0196	-0.0838	-0.056
795.48	-0.0956	-0.0226	-0.0181	-0.0815	-0.054
795.80	-0.0933	-0.0223	-0.0163	-0.0803	-0.053
796.12	-0.0922	-0.0208	-0.0152	-0.0783	-0.052
796.45	-0.0939	-0.0195	-0.0153	-0.077	-0.051
796.77	-0.0936	-0.0193	-0.0143	-0.0766	-0.051
797.09	-0.0929	-0.0166	-0.0119	-0.0763	-0.049
797.42	-0.0933	-0.0174	-0.0129	-0.0737	-0.049
797.74	-0.0936	-0.0184	-0.0132	-0.0745	-0.050
798.06	-0.0961	-0.0175	-0.0128	-0.0738	-0.050
798.38	-0.096	-0.0164	-0.0121	-0.074	-0.050
798.71	-0.0938	-0.0147	-0.0099	-0.0724	-0.048
799.03	-0.0943	-0.0156	-0.0111	-0.0739	-0.049
799.35	-0.0935	-0.0141	-0.0116	-0.0729	-0.048
799.68	-0.092	-0.0132	-0.0105	-0.0712	-0.047
800.00	-0.0898	-0.011	-0.0072	-0.0676	-0.044

Absorbance values for front, back, armpit and sleeve of the Gold A t-shirt square for Phase I

Wavelength	Absorbance
400.21	0.6858
400.58	0.6785
400.95	0.6762
401.32	0.6690
401.69	0.6658
402.06	0.6722
402.43	0.6696

402.80	0.6737
403.18	0.6770
403.55	0.6766
403.92	0.6775
404.29	0.6729
404.66	0.6722
405.03	0.6696
405.40	0.6611
405.77	0.6590
406.14	0.6548
406.51	0.6516
406.88	0.6453
407.25	0.6439
407.62	0.6424
407.99	0.6433
408.36	0.6405
408.74	0.6375
409.11	0.6368
409.48	0.6362
409.85	0.6318
410.22	0.6305
410.59	0.6290
410.96	0.6266
411.33	0.6241
411.70	0.6204
412.07	0.6203
412.44	0.6197
412.81	0.6167
413.18	0.6178
413.55	0.6151
413.92	0.6124
414.29	0.6112
414.66	0.6122
415.03	0.6108
415.40	0.6075
415.76	0.6066
416.13	0.6062
416.50	0.6028
416.87	0.5996

417.24	0.5977
417.61	0.5956
417.98	0.5919
418.35	0.5912
418.72	0.5898
419.09	0.5883
419.46	0.5885
419.83	0.5875
420.20	0.5851
420.57	0.5836
420.94	0.5812
421.31	0.5806
421.67	0.5805
422.04	0.5814
422.41	0.5799
422.78	0.5790
423.15	0.5783
423.52	0.5767
423.89	0.5768
424.26	0.5773
424.63	0.5780
424.99	0.5790
425.36	0.5798
425.73	0.5798
426.10	0.5791
426.47	0.5778
426.84	0.5778
427.21	0.5768
427.57	0.5765
427.94	0.5773
428.31	0.5771
428.68	0.5782
429.05	0.5780
429.42	0.5791
429.78	0.5776
430.15	0.5778
430.52	0.5782
430.89	0.5788
431.26	0.5799

431.62	0.5799
431.99	0.5795
432.36	0.5798
432.73	0.5785
433.10	0.5774
433.46	0.5782
433.83	0.5781
434.20	0.5784
434.57	0.5787
434.94	0.5790
435.30	0.5790
435.67	0.5781
436.04	0.5785
436.41	0.5777
436.77	0.5778
437.14	0.5771
437.51	0.5774
437.88	0.5774
438.24	0.5765
438.61	0.5747
438.98	0.5735
439.34	0.5727
439.71	0.5718
440.08	0.5708
440.45	0.5707
440.81	0.5709
441.18	0.5706
441.55	0.5703
441.91	0.5705
442.28	0.5707
442.65	0.5697
443.01	0.5697
443.38	0.5689
443.75	0.5677
444.12	0.5671
444.48	0.5666
444.85	0.5651
445.22	0.5642
445.58	0.5645

445.95	0.5646
446.31	0.5656
446.68	0.5652
447.05	0.5636
447.41	0.5636
447.78	0.5619
448.15	0.5615
448.51	0.5604
448.88	0.5588
449.25	0.5580
449.61	0.5573
449.98	0.5564
450.34	0.5562
450.71	0.5555
451.08	0.5555
451.44	0.5545
451.81	0.5536
452.17	0.5526
452.54	0.5522
452.91	0.5516
453.27	0.5503
453.64	0.5489
454.00	0.5479
454.37	0.5467
454.73	0.5465
455.10	0.5456
455.47	0.5457
455.83	0.5440
456.20	0.5428
456.56	0.5417
456.93	0.5396
457.29	0.5374
457.66	0.5357
458.02	0.5337
458.39	0.5318
458.75	0.5286
459.12	0.5264
459.48	0.5237
459.85	0.5218

460.21	0.5194
460.58	0.5165
460.94	0.5134
461.31	0.5109
461.67	0.5085
462.04	0.5052
462.40	0.5021
462.77	0.4993
463.13	0.4964
463.50	0.4935
463.86	0.4907
464.23	0.4882
464.59	0.4856
464.96	0.4828
465.32	0.4795
465.69	0.4760
466.05	0.4729
466.41	0.4700
466.78	0.4670
467.14	0.4641
467.51	0.4606
467.87	0.4577
468.24	0.4549
468.60	0.4521
468.96	0.4485
469.33	0.4448
469.69	0.4418
470.06	0.4388
470.42	0.4353
470.78	0.4314
471.15	0.4282
471.51	0.4245
471.88	0.4207
472.24	0.4164
472.60	0.4127
472.97	0.4091
473.33	0.4056
473.69	0.4020
474.06	0.3983

474.42	0.3947
474.78	0.3911
475.15	0.3875
475.51	0.3836
475.87	0.3797
476.24	0.3760
476.60	0.3726
476.96	0.3692
477.33	0.3654
477.69	0.3615
478.05	0.3577
478.42	0.3542
478.78	0.3505
479.14	0.3473
479.51	0.3439
479.87	0.3406
480.23	0.3372
480.60	0.3338
480.96	0.3306
481.32	0.3272
481.68	0.3240
482.05	0.3205
482.41	0.3169
482.77	0.3134
483.13	0.3100
483.50	0.3066
483.86	0.3031
484.22	0.2996
484.58	0.2961
484.95	0.2927
485.31	0.2893
485.67	0.2860
486.03	0.2828
486.40	0.2796
486.76	0.2762
487.12	0.2729
487.48	0.2695
487.85	0.2663
488.21	0.2632

488.57	0.2599
488.93	0.2568
489.29	0.2534
489.65	0.2507
490.02	0.2478
490.38	0.2446
490.74	0.2416
491.10	0.2387
491.46	0.2359
491.83	0.2330
492.19	0.2305
492.55	0.2277
492.91	0.2251
493.27	0.2227
493.63	0.2197
493.99	0.2174
494.36	0.2149
494.72	0.2124
495.08	0.2100
495.44	0.2076
495.80	0.2052
496.16	0.2029
496.52	0.2006
496.88	0.1985
497.25	0.1964
497.61	0.1940
497.97	0.1922
498.33	0.1904
498.69	0.1887
499.05	0.1869
499.41	0.1852
499.77	0.1834
500.13	0.1817
500.49	0.1801
500.85	0.1784
501.22	0.1772
501.58	0.1756
501.94	0.1743
502.30	0.1734

502.66	0.1723
503.02	0.1714
503.38	0.1706
503.74	0.1698
504.10	0.1692
504.46	0.1686
504.82	0.1680
505.18	0.1679
505.54	0.1675
505.90	0.1671
506.26	0.1670
506.62	0.1667
506.98	0.1665
507.34	0.1665
507.70	0.1666
508.06	0.1668
508.42	0.1670
508.78	0.1673
509.14	0.1677
509.50	0.1680
509.86	0.1683
510.22	0.1686
510.58	0.1692
510.94	0.1697
511.30	0.1704
511.66	0.1710
512.02	0.1719
512.38	0.1726
512.74	0.1735
513.09	0.1745
513.45	0.1757
513.81	0.1765
514.17	0.1776
514.53	0.1791
514.89	0.1804
515.25	0.1818
515.61	0.1832
515.97	0.1848
516.33	0.1863

516.69	0.1879
517.04	0.1898
517.40	0.1915
517.76	0.1934
518.12	0.1951
518.48	0.1972
518.84	0.1990
519.20	0.2010
519.56	0.2031
519.91	0.2053
520.27	0.2073
520.63	0.2091
520.99	0.2112
521.35	0.2135
521.71	0.2158
522.06	0.2180
522.42	0.2202
522.78	0.2224
523.14	0.2247
523.50	0.2270
523.86	0.2292
524.21	0.2316
524.57	0.2337
524.93	0.2360
525.29	0.2384
525.65	0.2409
526.00	0.2434
526.36	0.2459
526.72	0.2484
527.08	0.2509
527.44	0.2534
527.79	0.2561
528.15	0.2588
528.51	0.2615
528.87	0.2643
529.22	0.2670
529.58	0.2697
529.94	0.2725
530.30	0.2754

530.65	0.2782
531.01	0.2812
531.37	0.2841
531.72	0.2871
532.08	0.2904
532.44	0.2937
532.80	0.2968
533.15	0.3000
533.51	0.3031
533.87	0.3063
534.22	0.3096
534.58	0.3130
534.94	0.3163
535.30	0.3198
535.65	0.3235
536.01	0.3269
536.37	0.3305
536.72	0.3341
537.08	0.3377
537.44	0.3414
537.79	0.3453
538.15	0.3490
538.51	0.3529
538.86	0.3568
539.22	0.3609
539.57	0.3648
539.93	0.3686
540.29	0.3725
540.64	0.3766
541.00	0.3807
541.36	0.3847
541.71	0.3887
542.07	0.3927
542.42	0.3967
542.78	0.4006
543.14	0.4044
543.49	0.4083
543.85	0.4123
544.20	0.4164

544.56	0.4203
544.92	0.4241
545.27	0.4277
545.63	0.4315
545.98	0.4352
546.34	0.4391
546.69	0.4426
547.05	0.4463
547.40	0.4499
547.76	0.4534
548.12	0.4572
548.47	0.4607
548.83	0.4644
549.18	0.4680
549.54	0.4716
549.89	0.4754
550.25	0.4789
550.60	0.4823
550.96	0.4861
551.31	0.4897
551.67	0.4930
552.02	0.4965
552.38	0.5001
552.73	0.5036
553.09	0.5072
553.44	0.5108
553.80	0.5142
554.15	0.5176
554.51	0.5208
554.86	0.5242
555.21	0.5277
555.57	0.5309
555.92	0.5341
556.28	0.5372
556.63	0.5402
556.99	0.5434
557.34	0.5465
557.70	0.5495
558.05	0.5530

558.40	0.5560
558.76	0.5589
559.11	0.5620
559.47	0.5650
559.82	0.5680
560.17	0.5710
560.53	0.5739
560.88	0.5766
561.24	0.5796
561.59	0.5826
561.94	0.5857
562.30	0.5886
562.65	0.5916
563.00	0.5945
563.36	0.5975
563.71	0.6005
564.07	0.6035
564.42	0.6067
564.77	0.6097
565.13	0.6126
565.48	0.6154
565.83	0.6185
566.19	0.6216
566.54	0.6246
566.89	0.6277
567.25	0.6307
567.60	0.6335
567.95	0.6367
568.31	0.6399
568.66	0.6428
569.01	0.6459
569.36	0.6489
569.72	0.6521
570.07	0.6549
570.42	0.6579
570.78	0.6608
571.13	0.6638
571.48	0.6668
571.83	0.6696

572.19	0.6723
572.54	0.6754
572.89	0.6783
573.24	0.6807
573.60	0.6836
573.95	0.6864
574.30	0.6893
574.65	0.6922
575.01	0.6950
575.36	0.6976
575.71	0.7002
576.06	0.7028
576.41	0.7054
576.77	0.7080
577.12	0.7109
577.47	0.7135
577.82	0.7161
578.17	0.7187
578.53	0.7212
578.88	0.7234
579.23	0.7262
579.58	0.7289
579.93	0.7312
580.28	0.7337
580.64	0.7364
580.99	0.7389
581.34	0.7412
581.69	0.7433
582.04	0.7457
582.39	0.7482
582.75	0.7505
583.10	0.7530
583.45	0.7554
583.80	0.7578
584.15	0.7601
584.50	0.7622
584.85	0.7645
585.20	0.7670
585.55	0.7695

585.91	0.7717
586.26	0.7740
586.61	0.7763
586.96	0.7784
587.31	0.7806
587.66	0.7825
588.01	0.7845
588.36	0.7861
588.71	0.7882
589.06	0.7901
589.41	0.7918
589.76	0.7936
590.11	0.7956
590.46	0.7973
590.82	0.7995
591.17	0.8015
591.52	0.8034
591.87	0.8048
592.22	0.8065
592.57	0.8078
592.92	0.8093
593.27	0.8108
593.62	0.8127
593.97	0.8140
594.32	0.8156
594.67	0.8172
595.02	0.8190
595.37	0.8207
595.72	0.8226
596.07	0.8243
596.42	0.8258
596.77	0.8276
597.12	0.8290
597.46	0.8304
597.81	0.8320
598.16	0.8334
598.51	0.8343
598.86	0.8359
599.21	0.8377

599.56	0.8395
599.91	0.8412
600.26	0.8425
600.61	0.8441
600.96	0.8453
601.31	0.8465
601.66	0.8478
602.01	0.8490
602.35	0.8504
602.70	0.8515
603.05	0.8530
603.40	0.8544
603.75	0.8558
604.10	0.8570
604.45	0.8584
604.80	0.8597
605.15	0.8608
605.49	0.8618
605.84	0.8632
606.19	0.8643
606.54	0.8654
606.89	0.8660
607.24	0.8670
607.59	0.8681
607.93	0.8690
608.28	0.8701
608.63	0.8715
608.98	0.8723
609.33	0.8733
609.67	0.8739
610.02	0.8749
610.37	0.8756
610.72	0.8760
611.07	0.8769
611.41	0.8775
611.76	0.8778
612.11	0.8785
612.46	0.8791
612.81	0.8797

613.15	0.8801
613.50	0.8804
613.85	0.8806
614.20	0.8810
614.54	0.8814
614.89	0.8818
615.24	0.8821
615.59	0.8821
615.93	0.8821
616.28	0.8823
616.63	0.8824
616.98	0.8829
617.32	0.8831
617.67	0.8830
618.02	0.8833
618.36	0.8828
618.71	0.8828
619.06	0.8830
619.41	0.8826
619.75	0.8828
620.10	0.8826
620.45	0.8825
620.79	0.8824
621.14	0.8826
621.49	0.8829
621.83	0.8830
622.18	0.8829
622.53	0.8831
622.87	0.8831
623.22	0.8831
623.57	0.8834
623.91	0.8838
624.26	0.8836
624.60	0.8837
624.95	0.8840
625.30	0.8840
625.64	0.8845
625.99	0.8850
626.34	0.8852

626.68	0.8857
627.03	0.8857
627.37	0.8858
627.72	0.8861
628.07	0.8867
628.41	0.8870
628.76	0.8872
629.10	0.8874
629.45	0.8875
629.79	0.8877
630.14	0.8879
630.49	0.8883
630.83	0.8880
631.18	0.8878
631.52	0.8879
631.87	0.8878
632.21	0.8876
632.56	0.8876
632.90	0.8875
633.25	0.8875
633.59	0.8877
633.94	0.8875
634.28	0.8875
634.63	0.8877
634.97	0.8879
635.32	0.8877
635.66	0.8876
636.01	0.8875
636.35	0.8871
636.70	0.8872
637.04	0.8872
637.39	0.8873
637.73	0.8872
638.08	0.8877
638.42	0.8880
638.77	0.8881
639.11	0.8877
639.46	0.8881
639.80	0.8883

640.14	0.8884
640.49	0.8883
640.83	0.8883
641.18	0.8886
641.52	0.8887
641.87	0.8888
642.21	0.8888
642.55	0.8886
642.90	0.8887
643.24	0.8887
643.59	0.8889
643.93	0.8892
644.27	0.8893
644.62	0.8893
644.96	0.8892
645.31	0.8890
645.65	0.8891
645.99	0.8890
646.34	0.8896
646.68	0.8896
647.02	0.8898
647.37	0.8903
647.71	0.8905
648.05	0.8906
648.40	0.8907
648.74	0.8910
649.08	0.8912
649.43	0.8914
649.77	0.8917
650.11	0.8917
650.46	0.8919
650.80	0.8921
651.14	0.8920
651.49	0.8918
651.83	0.8921
652.17	0.8924
652.51	0.8927
652.86	0.8931
653.20	0.8933

653.54	0.8934
653.88	0.8932
654.23	0.8933
654.57	0.8931
654.91	0.8932
655.26	0.8931
655.60	0.8933
655.94	0.8932
656.28	0.8930
656.62	0.8932
656.97	0.8935
657.31	0.8937
657.65	0.8938
657.99	0.8938
658.34	0.8939
658.68	0.8944
659.02	0.8943
659.36	0.8945
659.70	0.8944
660.05	0.8942
660.39	0.8943
660.73	0.8944
661.07	0.8944
661.41	0.8947
661.75	0.8947
662.10	0.8949
662.44	0.8950
662.78	0.8950
663.12	0.8953
663.46	0.8956
663.80	0.8956
664.14	0.8954
664.49	0.8955
664.83	0.8955
665.17	0.8955
665.51	0.8955
665.85	0.8954
666.19	0.8956
666.53	0.8957

666.87	0.8956
667.21	0.8957
667.56	0.8954
667.90	0.8954
668.24	0.8959
668.58	0.8957
668.92	0.8960
669.26	0.8962
669.60	0.8963
669.94	0.8962
670.28	0.8961
670.62	0.8960
670.96	0.8958
671.30	0.8958
671.64	0.8954
671.98	0.8950
672.32	0.8949
672.66	0.8950
673.00	0.8948
673.34	0.8945
673.68	0.8942
674.02	0.8943
674.36	0.8942
674.70	0.8943
675.04	0.8942
675.38	0.8937
675.72	0.8936
676.06	0.8935
676.40	0.8935
676.74	0.8933
677.08	0.8931
677.42	0.8930
677.76	0.8930
678.10	0.8932
678.44	0.8934
678.78	0.8938
679.12	0.8943
679.46	0.8948
679.80	0.8946

680.14	0.8944
680.48	0.8941
680.82	0.8940
681.16	0.8936
681.50	0.8935
681.83	0.8936
682.17	0.8936
682.51	0.8934
682.85	0.8933
683.19	0.8928
683.53	0.8923
683.87	0.8922
684.21	0.8924
684.55	0.8923
684.88	0.8922
685.22	0.8916
685.56	0.8917
685.90	0.8913
686.24	0.8908
686.58	0.8902
686.92	0.8900
687.25	0.8901
687.59	0.8902
687.93	0.8903
688.27	0.8902
688.61	0.8900
688.94	0.8901
689.28	0.8896
689.62	0.8896
689.96	0.8893
690.30	0.8890
690.64	0.8892
690.97	0.8892
691.31	0.8893
691.65	0.8892
691.99	0.8890
692.32	0.8892
692.66	0.8883
693.00	0.8879

693.34	0.8875
693.67	0.8873
694.01	0.8871
694.35	0.8872
694.69	0.8874
695.02	0.8869
695.36	0.8866
695.70	0.8871
696.04	0.8867
696.37	0.8869
696.71	0.8868
697.05	0.8865
697.38	0.8868
697.72	0.8867
698.06	0.8869
698.40	0.8865
698.73	0.8866
699.07	0.8869
699.41	0.8866
699.74	0.8869
700.08	0.8874
700.42	0.8879
700.75	0.8880

Absorbance values of the Kelly Green Munsell Chip 7.5 4, 14 for Phase I

k	0.11893	0.05496	0.06776	0.06828	0.04487	0.07136	0.04100
sum	0.67484	0.21180	0.38323	0.30863	0.22786	0.50314	0.11566
	2 scans	5 scans	10 scans	15 scans	20 scans	30 scans	50 scans
400.33	0.00005	0.00005	0.00004	0.00002	0.00002	0.00059	0.00010
400.69	0.00008	0.00000	0.00005	0.00006	0.00003	0.00055	0.00008
401.06	0.00004	0.00000	0.00002	0.00009	0.00014	0.00059	0.00014
401.42	0.00012	0.00000	0.00002	0.00022	0.00014	0.00070	0.00017
401.78	0.00020	0.00005	0.00003	0.00009	0.00005	0.00055	0.00014
402.14	0.00049	0.00012	0.00000	0.00019	0.00003	0.00064	0.00006
402.5	0.00073	0.00017	0.00000	0.00016	0.00001	0.00059	0.00005
402.87	0.00079	0.00005	0.00001	0.00016	0.00000	0.00055	0.00006

403.23	0.00068	0.00003	0.00001	0.00014	0.00000	0.00038	0.00008
403.59	0.00109	0.00002	0.00003	0.00005	0.00001	0.00046	0.00006
403.95	0.00097	0.00004	0.00001	0.00005	0.00002	0.00046	0.00010
404.31	0.00123	0.00001	0.00003	0.00008	0.00003	0.00050	0.00008
404.68	0.00063	0.00000	0.00006	0.00009	0.00008	0.00055	0.00008
405.04	0.00044	0.00002	0.00008	0.00009	0.00003	0.00059	0.00005
405.4	0.00029	0.00000	0.00005	0.00003	0.00003	0.00050	0.00005
405.76	0.00020	0.00000	0.00002	0.00009	0.00010	0.00059	0.00005
406.12	0.00029	0.00002	0.00000	0.00014	0.00005	0.00046	0.00005
406.49	0.00017	0.00001	0.00000	0.00014	0.00010	0.00050	0.00004
406.85	0.00001	0.00006	0.00001	0.00016	0.00010	0.00050	0.00001
407.21	0.00003	0.00006	0.00002	0.00016	0.00012	0.00070	0.00000
407.57	0.00002	0.00023	0.00001	0.00025	0.00010	0.00064	0.00000
407.93	0.00000	0.00020	0.00004	0.00022	0.00005	0.00055	0.00000
408.29	0.00008	0.00023	0.00007	0.00019	0.00012	0.00059	0.00000
408.65	0.00005	0.00017	0.00009	0.00014	0.00008	0.00050	0.00002
409.02	0.00002	0.00012	0.00020	0.00008	0.00001	0.00041	0.00004
409.38	0.00002	0.00023	0.00023	0.00008	0.00000	0.00038	0.00008
409.74	0.00000	0.00029	0.00033	0.00006	0.00000	0.00021	0.00008
410.1	0.00006	0.00023	0.00026	0.00005	0.00001	0.00021	0.00010
410.46	0.00005	0.00023	0.00041	0.00008	0.00004	0.00015	0.00010
410.82	0.00002	0.00023	0.00045	0.00011	0.00005	0.00018	0.00010
411.18	0.00007	0.00029	0.00054	0.00009	0.00004	0.00007	0.00017
411.54	0.00007	0.00017	0.00054	0.00005	0.00004	0.00011	0.00020
411.91	0.00015	0.00008	0.00049	0.00002	0.00002	0.00007	0.00022
412.27	0.00033	0.00003	0.00037	0.00003	0.00002	0.00005	0.00022
412.63	0.00068	0.00008	0.00059	0.00008	0.00005	0.00003	0.00026
412.99	0.00079	0.00017	0.00064	0.00009	0.00001	0.00009	0.00022
413.35	0.00103	0.00020	0.00069	0.00019	0.00000	0.00009	0.00022
413.71	0.00194	0.00012	0.00064	0.00022	0.00000	0.00007	0.00026
414.07	0.00194	0.00010	0.00074	0.00019	0.00000	0.00013	0.00020
414.43	0.00194	0.00029	0.00069	0.00006	0.00000	0.00013	0.00020
414.79	0.00169	0.00012	0.00059	0.00001	0.00000	0.00013	0.00017
415.15	0.00137	0.00006	0.00049	0.00003	0.00000	0.00011	0.00012
415.51	0.00161	0.00008	0.00033	0.00005	0.00000	0.00013	0.00008
415.88	0.00161	0.00008	0.00023	0.00011	0.00000	0.00021	0.00005
416.24	0.00203	0.00005	0.00018	0.00011	0.00003	0.00018	0.00006
416.6	0.00194	0.00002	0.00010	0.00011	0.00001	0.00021	0.00006
416.96	0.00261	0.00000	0.00007	0.00016	0.00004	0.00011	0.00010

417.32	0.00241	0.00001	0.00002	0.00016	0.00003	0.00013	0.00008
417.68	0.00177	0.00000	0.00000	0.00016	0.00001	0.00021	0.00010
418.04	0.00153	0.00004	0.00001	0.00019	0.00000	0.00015	0.00010
418.4	0.00169	0.00002	0.00001	0.00031	0.00003	0.00011	0.00012
418.76	0.00130	0.00001	0.00000	0.00031	0.00005	0.00013	0.00014
419.12	0.00145	0.00000	0.00000	0.00031	0.00008	0.00011	0.00017
419.48	0.00097	0.00001	0.00004	0.00028	0.00010	0.00009	0.00020
419.84	0.00085	0.00001	0.00018	0.00031	0.00010	0.00004	0.00029
420.2	0.00044	0.00000	0.00010	0.00025	0.00015	0.00005	0.00029
420.56	0.00023	0.00000	0.00013	0.00031	0.00020	0.00004	0.00032
420.92	0.00001	0.00000	0.00020	0.00035	0.00029	0.00004	0.00036
421.28	0.00003	0.00003	0.00033	0.00031	0.00041	0.00004	0.00040
421.64	0.00004	0.00005	0.00059	0.00039	0.00054	0.00003	0.00040
422	0.00026	0.00023	0.00080	0.00043	0.00068	0.00002	0.00044
422.36	0.00015	0.00020	0.00086	0.00043	0.00058	0.00003	0.00048
422.72	0.00044	0.00020	0.00074	0.00047	0.00049	0.00004	0.00044
423.08	0.00058	0.00023	0.00069	0.00047	0.00054	0.00009	0.00036
423.44	0.00097	0.00026	0.00059	0.00061	0.00058	0.00009	0.00032
423.8	0.00085	0.00044	0.00045	0.00056	0.00054	0.00013	0.00029
424.16	0.00103	0.00033	0.00064	0.00061	0.00049	0.00007	0.00022
424.52	0.00130	0.00049	0.00080	0.00061	0.00049	0.00004	0.00026
424.88	0.00194	0.00040	0.00074	0.00056	0.00045	0.00002	0.00022
425.24	0.00137	0.00040	0.00069	0.00047	0.00037	0.00001	0.00020
425.6	0.00169	0.00068	0.00069	0.00052	0.00033	0.00001	0.00020
425.96	0.00116	0.00058	0.00074	0.00052	0.00026	0.00000	0.00020
426.32	0.00161	0.00053	0.00091	0.00052	0.00037	0.00000	0.00020
426.68	0.00161	0.00079	0.00080	0.00061	0.00037	0.00001	0.00022
427.04	0.00177	0.00058	0.00086	0.00052	0.00041	0.00003	0.00022
427.4	0.00203	0.00049	0.00091	0.00035	0.00045	0.00006	0.00020
427.76	0.00177	0.00044	0.00098	0.00043	0.00045	0.00007	0.00014
428.12	0.00169	0.00049	0.00086	0.00043	0.00037	0.00006	0.00014
428.47	0.00153	0.00040	0.00064	0.00047	0.00037	0.00003	0.00012
428.83	0.00194	0.00044	0.00064	0.00047	0.00037	0.00003	0.00010
429.19	0.00203	0.00040	0.00059	0.00047	0.00041	0.00004	0.00008
429.55	0.00137	0.00026	0.00069	0.00052	0.00041	0.00004	0.00005
429.91	0.00153	0.00020	0.00069	0.00052	0.00049	0.00001	0.00005
430.27	0.00123	0.00036	0.00064	0.00056	0.00037	0.00001	0.00005
430.63	0.00097	0.00017	0.00054	0.00047	0.00029	0.00001	0.00004
430.99	0.00079	0.00036	0.00064	0.00056	0.00029	0.00001	0.00004

431.35	0.00058	0.00068	0.00054	0.00094	0.00029	0.00001	0.00005
431.71	0.00079	0.00079	0.00074	0.00101	0.00033	0.00001	0.00010
432.07	0.00068	0.00084	0.00074	0.00094	0.00041	0.00001	0.00012
432.42	0.00063	0.00079	0.00086	0.00088	0.00041	0.00000	0.00010
432.78	0.00026	0.00073	0.00091	0.00094	0.00045	0.00001	0.00010
433.14	0.00040	0.00079	0.00086	0.00082	0.00045	0.00000	0.00012
433.5	0.00068	0.00068	0.00091	0.00082	0.00054	0.00000	0.00017
433.86	0.00073	0.00068	0.00074	0.00088	0.00045	0.00001	0.00017
434.22	0.00073	0.00040	0.00064	0.00088	0.00049	0.00001	0.00017
434.58	0.00103	0.00053	0.00080	0.00088	0.00058	0.00001	0.00020
434.94	0.00153	0.00040	0.00069	0.00088	0.00054	0.00001	0.00020
435.29	0.00153	0.00029	0.00086	0.00077	0.00054	0.00003	0.00020
435.65	0.00145	0.00036	0.00054	0.00061	0.00041	0.00002	0.00012
436.01	0.00153	0.00036	0.00059	0.00056	0.00041	0.00003	0.00010
436.37	0.00177	0.00049	0.00054	0.00071	0.00033	0.00004	0.00012
436.73	0.00186	0.00040	0.00054	0.00056	0.00023	0.00002	0.00008
437.09	0.00212	0.00026	0.00054	0.00061	0.00020	0.00004	0.00008
437.44	0.00231	0.00023	0.00037	0.00061	0.00012	0.00002	0.00005
437.8	0.00212	0.00014	0.00049	0.00056	0.00012	0.00002	0.00005
438.16	0.00145	0.00012	0.00049	0.00043	0.00010	0.00002	0.00002
438.52	0.00145	0.00008	0.00049	0.00047	0.00007	0.00002	0.00002
438.88	0.00130	0.00010	0.00037	0.00047	0.00007	0.00001	0.00002
439.24	0.00145	0.00006	0.00037	0.00047	0.00007	0.00001	0.00002
439.59	0.00161	0.00002	0.00045	0.00047	0.00005	0.00001	0.00002
439.95	0.00203	0.00001	0.00059	0.00061	0.00004	0.00000	0.00004
440.31	0.00203	0.00000	0.00054	0.00052	0.00005	0.00001	0.00001
440.67	0.00212	0.00001	0.00041	0.00056	0.00005	0.00001	0.00001
441.03	0.00203	0.00005	0.00041	0.00061	0.00005	0.00000	0.00000
441.38	0.00222	0.00005	0.00037	0.00061	0.00004	0.00000	0.00000
441.74	0.00231	0.00014	0.00041	0.00066	0.00005	0.00000	0.00000
442.1	0.00314	0.00014	0.00037	0.00066	0.00007	0.00000	0.00000
442.46	0.00282	0.00017	0.00045	0.00066	0.00008	0.00000	0.00000
442.81	0.00231	0.00010	0.00059	0.00061	0.00008	0.00001	0.00002
443.17	0.00251	0.00012	0.00059	0.00061	0.00010	0.00001	0.00000
443.53	0.00212	0.00010	0.00049	0.00052	0.00010	0.00001	0.00000
443.89	0.00212	0.00014	0.00049	0.00052	0.00012	0.00001	0.00000
444.24	0.00161	0.00014	0.00049	0.00052	0.00008	0.00001	0.00000
444.6	0.00145	0.00008	0.00064	0.00047	0.00007	0.00003	0.00000
444.96	0.00123	0.00004	0.00064	0.00047	0.00008	0.00003	0.00000

445.32	0.00079	0.00008	0.00074	0.00035	0.00012	0.00002	0.00000
445.67	0.00058	0.00005	0.00074	0.00031	0.00012	0.00002	0.00000
446.03	0.00049	0.00006	0.00069	0.00043	0.00012	0.00002	0.00000
446.39	0.00044	0.00004	0.00069	0.00043	0.00010	0.00002	0.00000
446.75	0.00033	0.00006	0.00049	0.00039	0.00007	0.00003	0.00000
447.1	0.00029	0.00006	0.00054	0.00039	0.00007	0.00005	0.00000
447.46	0.00023	0.00006	0.00069	0.00039	0.00004	0.00004	0.00000
447.82	0.00023	0.00006	0.00054	0.00035	0.00004	0.00004	0.00000
448.18	0.00040	0.00005	0.00049	0.00025	0.00004	0.00007	0.00000
448.53	0.00033	0.00008	0.00045	0.00031	0.00007	0.00004	0.00000
448.89	0.00029	0.00012	0.00041	0.00028	0.00005	0.00004	0.00002
449.25	0.00036	0.00005	0.00037	0.00031	0.00003	0.00004	0.00003
449.6	0.00040	0.00003	0.00030	0.00031	0.00002	0.00004	0.00005
449.96	0.00026	0.00002	0.00026	0.00025	0.00002	0.00004	0.00010
450.32	0.00026	0.00001	0.00023	0.00025	0.00002	0.00003	0.00010
450.67	0.00036	0.00000	0.00030	0.00025	0.00002	0.00002	0.00008
451.03	0.00036	0.00000	0.00023	0.00022	0.00001	0.00002	0.00010
451.39	0.00058	0.00000	0.00020	0.00025	0.00003	0.00001	0.00012
451.74	0.00053	0.00000	0.00020	0.00028	0.00003	0.00001	0.00012
452.1	0.00049	0.00000	0.00020	0.00028	0.00003	0.00001	0.00014
452.46	0.00063	0.00000	0.00020	0.00028	0.00002	0.00001	0.00014
452.81	0.00068	0.00000	0.00023	0.00031	0.00004	0.00000	0.00012
453.17	0.00073	0.00000	0.00023	0.00025	0.00005	0.00000	0.00012
453.53	0.00079	0.00000	0.00026	0.00022	0.00005	0.00000	0.00008
453.88	0.00090	0.00000	0.00026	0.00025	0.00003	0.00000	0.00008
454.24	0.00103	0.00002	0.00020	0.00025	0.00003	0.00000	0.00006
454.6	0.00085	0.00000	0.00015	0.00025	0.00003	0.00001	0.00012
454.95	0.00097	0.00002	0.00015	0.00028	0.00004	0.00000	0.00012
455.31	0.00085	0.00004	0.00015	0.00028	0.00004	0.00000	0.00012
455.66	0.00073	0.00004	0.00013	0.00022	0.00004	0.00001	0.00014
456.02	0.00063	0.00002	0.00018	0.00019	0.00007	0.00001	0.00014
456.38	0.00058	0.00000	0.00010	0.00014	0.00004	0.00001	0.00020
456.73	0.00053	0.00000	0.00007	0.00011	0.00002	0.00002	0.00023
457.09	0.00058	0.00002	0.00007	0.00011	0.00003	0.00002	0.00023
457.45	0.00044	0.00003	0.00004	0.00009	0.00004	0.00002	0.00026
457.8	0.00058	0.00002	0.00007	0.00011	0.00004	0.00001	0.00023
458.16	0.00049	0.00000	0.00007	0.00008	0.00004	0.00001	0.00026
458.51	0.00040	0.00004	0.00009	0.00008	0.00005	0.00001	0.00023
458.87	0.00026	0.00001	0.00009	0.00008	0.00005	0.00001	0.00023

459.23	0.00023	0.00000	0.00007	0.00005	0.00003	0.00002	0.00026
459.58	0.00015	0.00002	0.00005	0.00006	0.00003	0.00002	0.00026
459.94	0.00015	0.00003	0.00002	0.00003	0.00001	0.00001	0.00026
460.29	0.00017	0.00006	0.00002	0.00005	0.00001	0.00001	0.00023
460.65	0.00023	0.00008	0.00002	0.00005	0.00001	0.00001	0.00026
461	0.00015	0.00010	0.00002	0.00005	0.00001	0.00000	0.00026
461.36	0.00023	0.00014	0.00002	0.00006	0.00002	0.00000	0.00020
461.71	0.00017	0.00017	0.00002	0.00005	0.00001	0.00001	0.00020
462.07	0.00029	0.00010	0.00001	0.00006	0.00002	0.00001	0.00023
462.43	0.00026	0.00010	0.00001	0.00008	0.00001	0.00001	0.00020
462.78	0.00036	0.00010	0.00002	0.00006	0.00001	0.00000	0.00020
463.14	0.00036	0.00008	0.00001	0.00006	0.00002	0.00000	0.00020
463.49	0.00040	0.00003	0.00004	0.00008	0.00002	0.00000	0.00017
463.85	0.00044	0.00002	0.00004	0.00008	0.00001	0.00000	0.00020
464.2	0.00040	0.00000	0.00003	0.00008	0.00000	0.00000	0.00020
464.56	0.00029	0.00000	0.00004	0.00008	0.00001	0.00000	0.00017
464.91	0.00026	0.00000	0.00003	0.00009	0.00001	0.00001	0.00014
465.27	0.00029	0.00001	0.00003	0.00009	0.00000	0.00001	0.00017
465.62	0.00033	0.00002	0.00002	0.00006	0.00000	0.00001	0.00020
465.98	0.00026	0.00002	0.00002	0.00005	0.00000	0.00001	0.00020
466.33	0.00033	0.00004	0.00002	0.00003	0.00000	0.00001	0.00023
466.69	0.00029	0.00002	0.00002	0.00003	0.00001	0.00001	0.00023
467.04	0.00026	0.00005	0.00001	0.00001	0.00001	0.00001	0.00026
467.4	0.00026	0.00005	0.00001	0.00001	0.00001	0.00001	0.00026
467.75	0.00023	0.00004	0.00001	0.00001	0.00001	0.00001	0.00026
468.11	0.00023	0.00005	0.00001	0.00000	0.00001	0.00001	0.00026
468.46	0.00020	0.00006	0.00000	0.00000	0.00001	0.00000	0.00023
468.82	0.00020	0.00010	0.00000	0.00000	0.00001	0.00000	0.00023
469.17	0.00012	0.00014	0.00000	0.00000	0.00002	0.00000	0.00023
469.53	0.00007	0.00014	0.00000	0.00001	0.00003	0.00001	0.00023
469.88	0.00008	0.00014	0.00000	0.00001	0.00002	0.00001	0.00020
470.24	0.00008	0.00012	0.00000	0.00001	0.00002	0.00000	0.00017
470.59	0.00008	0.00017	0.00001	0.00001	0.00005	0.00000	0.00017
470.94	0.00005	0.00017	0.00001	0.00002	0.00005	0.00000	0.00017
471.3	0.00005	0.00014	0.00001	0.00002	0.00005	0.00000	0.00014
471.65	0.00003	0.00022	0.00002	0.00003	0.00006	0.00000	0.00017
472.01	0.00002	0.00017	0.00001	0.00003	0.00006	0.00000	0.00014
472.36	0.00007	0.00012	0.00000	0.00004	0.00008	0.00000	0.00014
472.72	0.00008	0.00008	0.00000	0.00003	0.00010	0.00000	0.00012

473.07	0.00008	0.00006	0.00000	0.00004	0.00010	0.00000	0.00012
473.43	0.00008	0.00006	0.00000	0.00003	0.00006	0.00000	0.00012
473.78	0.00010	0.00005	0.00000	0.00003	0.00006	0.00001	0.00010
474.13	0.00005	0.00006	0.00001	0.00004	0.00005	0.00000	0.00010
474.49	0.00002	0.00005	0.00001	0.00005	0.00003	0.00000	0.00008
474.84	0.00002	0.00005	0.00002	0.00005	0.00005	0.00000	0.00008
475.2	0.00003	0.00002	0.00001	0.00002	0.00005	0.00000	0.00006
475.55	0.00008	0.00002	0.00003	0.00003	0.00005	0.00000	0.00006
475.9	0.00007	0.00002	0.00005	0.00002	0.00005	0.00000	0.00008
476.26	0.00002	0.00002	0.00005	0.00001	0.00002	0.00000	0.00006
476.61	0.00000	0.00002	0.00002	0.00001	0.00001	0.00000	0.00006
476.96	0.00000	0.00002	0.00001	0.00001	0.00001	0.00000	0.00005
477.32	0.00001	0.00006	0.00002	0.00001	0.00002	0.00000	0.00006
477.67	0.00000	0.00006	0.00005	0.00001	0.00003	0.00000	0.00008
478.03	0.00001	0.00010	0.00005	0.00001	0.00006	0.00001	0.00008
478.38	0.00003	0.00012	0.00002	0.00001	0.00008	0.00001	0.00006
478.73	0.00007	0.00012	0.00001	0.00001	0.00008	0.00001	0.00006
479.09	0.00007	0.00010	0.00001	0.00001	0.00006	0.00001	0.00006
479.44	0.00003	0.00008	0.00000	0.00001	0.00003	0.00001	0.00006
479.79	0.00005	0.00005	0.00000	0.00001	0.00002	0.00003	0.00005
480.15	0.00007	0.00004	0.00000	0.00002	0.00005	0.00003	0.00005
480.5	0.00015	0.00004	0.00000	0.00001	0.00005	0.00004	0.00005
480.85	0.00012	0.00004	0.00000	0.00001	0.00005	0.00006	0.00005
481.21	0.00008	0.00002	0.00000	0.00001	0.00005	0.00006	0.00005
481.56	0.00007	0.00002	0.00000	0.00001	0.00003	0.00006	0.00005
481.91	0.00008	0.00002	0.00000	0.00001	0.00002	0.00007	0.00004
482.27	0.00010	0.00001	0.00000	0.00001	0.00002	0.00009	0.00004
482.62	0.00007	0.00000	0.00000	0.00000	0.00001	0.00009	0.00003
482.97	0.00005	0.00002	0.00000	0.00000	0.00001	0.00011	0.00003
483.33	0.00005	0.00002	0.00000	0.00000	0.00002	0.00011	0.00004
483.68	0.00004	0.00002	0.00000	0.00000	0.00002	0.00011	0.00003
484.03	0.00007	0.00002	0.00000	0.00000	0.00002	0.00014	0.00004
484.38	0.00008	0.00001	0.00000	0.00000	0.00002	0.00019	0.00003
484.74	0.00008	0.00001	0.00000	0.00000	0.00001	0.00021	0.00003
485.09	0.00012	0.00002	0.00000	0.00000	0.00001	0.00021	0.00002
485.44	0.00017	0.00002	0.00000	0.00000	0.00001	0.00024	0.00003
485.8	0.00020	0.00000	0.00001	0.00000	0.00000	0.00028	0.00002
486.15	0.00017	0.00000	0.00001	0.00000	0.00000	0.00031	0.00001
486.5	0.00015	0.00000	0.00001	0.00000	0.00000	0.00035	0.00002

486.85	0.00017	0.00000	0.00002	0.00000	0.00000	0.00035	0.00002
487.21	0.00017	0.00000	0.00002	0.00000	0.00000	0.00039	0.00002
487.56	0.00017	0.00001	0.00003	0.00000	0.00000	0.00039	0.00003
487.91	0.00012	0.00000	0.00002	0.00001	0.00000	0.00043	0.00002
488.26	0.00015	0.00000	0.00002	0.00001	0.00000	0.00043	0.00003
488.62	0.00020	0.00000	0.00002	0.00003	0.00001	0.00047	0.00002
488.97	0.00015	0.00002	0.00003	0.00003	0.00001	0.00047	0.00002
489.32	0.00012	0.00002	0.00004	0.00003	0.00001	0.00056	0.00002
489.67	0.00012	0.00003	0.00004	0.00002	0.00001	0.00056	0.00002
490.02	0.00012	0.00005	0.00004	0.00002	0.00001	0.00056	0.00002
490.38	0.00012	0.00006	0.00007	0.00002	0.00000	0.00061	0.00003
490.73	0.00015	0.00010	0.00007	0.00005	0.00001	0.00066	0.00002
491.08	0.00010	0.00010	0.00005	0.00005	0.00001	0.00071	0.00002
491.43	0.00010	0.00010	0.00007	0.00003	0.00001	0.00071	0.00002
491.79	0.00008	0.00008	0.00010	0.00002	0.00000	0.00071	0.00003
492.14	0.00005	0.00008	0.00010	0.00003	0.00000	0.00071	0.00003
492.49	0.00005	0.00008	0.00013	0.00005	0.00002	0.00076	0.00003
492.84	0.00005	0.00006	0.00013	0.00005	0.00002	0.00082	0.00003
493.19	0.00004	0.00006	0.00010	0.00006	0.00002	0.00082	0.00004
493.54	0.00003	0.00005	0.00010	0.00006	0.00002	0.00088	0.00003
493.9	0.00001	0.00004	0.00010	0.00005	0.00003	0.00082	0.00003
494.25	0.00001	0.00006	0.00009	0.00005	0.00004	0.00088	0.00002
494.6	0.00003	0.00003	0.00009	0.00005	0.00004	0.00088	0.00003
494.95	0.00004	0.00002	0.00010	0.00005	0.00003	0.00088	0.00004
495.3	0.00003	0.00004	0.00010	0.00008	0.00004	0.00088	0.00003
495.65	0.00001	0.00004	0.00007	0.00009	0.00004	0.00088	0.00004
496.01	0.00001	0.00003	0.00007	0.00006	0.00004	0.00094	0.00004
496.36	0.00000	0.00001	0.00007	0.00005	0.00004	0.00094	0.00005
496.71	0.00000	0.00001	0.00007	0.00005	0.00004	0.00094	0.00004
497.06	0.00000	0.00000	0.00009	0.00003	0.00004	0.00100	0.00004
497.41	0.00000	0.00000	0.00009	0.00003	0.00003	0.00094	0.00005
497.76	0.00001	0.00000	0.00010	0.00006	0.00003	0.00100	0.00004
498.11	0.00002	0.00000	0.00010	0.00008	0.00003	0.00100	0.00005
498.47	0.00003	0.00001	0.00013	0.00008	0.00004	0.00107	0.00003
498.82	0.00001	0.00000	0.00010	0.00006	0.00002	0.00107	0.00004
499.17	0.00002	0.00000	0.00009	0.00006	0.00003	0.00107	0.00003
499.52	0.00004	0.00000	0.00010	0.00005	0.00003	0.00100	0.00004
499.87	0.00008	0.00000	0.00013	0.00006	0.00002	0.00100	0.00004
500.22	0.00007	0.00001	0.00010	0.00006	0.00002	0.00094	0.00004

500.57	0.00008	0.00001	0.00010	0.00008	0.00002	0.00094	0.00004
500.92	0.00005	0.00000	0.00009	0.00006	0.00001	0.00088	0.00005
501.27	0.00007	0.00000	0.00007	0.00005	0.00001	0.00088	0.00005
501.62	0.00005	0.00000	0.00007	0.00005	0.00002	0.00082	0.00005
501.97	0.00005	0.00000	0.00005	0.00005	0.00001	0.00071	0.00005
502.33	0.00004	0.00000	0.00007	0.00005	0.00001	0.00076	0.00005
502.68	0.00003	0.00000	0.00007	0.00003	0.00001	0.00076	0.00006
503.03	0.00003	0.00000	0.00007	0.00003	0.00002	0.00076	0.00005
503.38	0.00002	0.00000	0.00007	0.00005	0.00002	0.00088	0.00005
503.73	0.00000	0.00002	0.00009	0.00005	0.00003	0.00088	0.00005
504.08	0.00001	0.00002	0.00005	0.00003	0.00002	0.00082	0.00006
504.43	0.00000	0.00003	0.00009	0.00005	0.00003	0.00088	0.00005
504.78	0.00000	0.00003	0.00009	0.00005	0.00003	0.00082	0.00006
505.13	0.00000	0.00002	0.00013	0.00005	0.00002	0.00082	0.00006
505.48	0.00000	0.00002	0.00013	0.00005	0.00002	0.00088	0.00006
505.83	0.00000	0.00002	0.00013	0.00002	0.00001	0.00082	0.00008
506.18	0.00000	0.00003	0.00010	0.00002	0.00002	0.00088	0.00008
506.53	0.00000	0.00002	0.00009	0.00001	0.00001	0.00076	0.00012
506.88	0.00001	0.00000	0.00009	0.00001	0.00000	0.00071	0.00014
507.23	0.00001	0.00000	0.00007	0.00001	0.00001	0.00071	0.00014
507.58	0.00002	0.00000	0.00009	0.00001	0.00001	0.00071	0.00012
507.93	0.00004	0.00000	0.00010	0.00001	0.00002	0.00076	0.00012
508.28	0.00002	0.00001	0.00009	0.00001	0.00002	0.00071	0.00012
508.63	0.00004	0.00000	0.00010	0.00001	0.00002	0.00066	0.00012
508.98	0.00002	0.00000	0.00015	0.00002	0.00004	0.00071	0.00012
509.33	0.00002	0.00000	0.00015	0.00002	0.00004	0.00071	0.00012
509.68	0.00005	0.00000	0.00015	0.00003	0.00004	0.00071	0.00012
510.03	0.00005	0.00000	0.00015	0.00005	0.00005	0.00071	0.00012
510.38	0.00005	0.00000	0.00013	0.00003	0.00003	0.00066	0.00012
510.73	0.00008	0.00000	0.00015	0.00005	0.00004	0.00066	0.00012
511.08	0.00008	0.00000	0.00015	0.00003	0.00002	0.00066	0.00012
511.43	0.00014	0.00001	0.00013	0.00003	0.00001	0.00056	0.00017
511.78	0.00014	0.00001	0.00010	0.00001	0.00000	0.00051	0.00020
512.13	0.00017	0.00000	0.00010	0.00002	0.00000	0.00051	0.00023
512.48	0.00019	0.00000	0.00010	0.00003	0.00000	0.00051	0.00026
512.83	0.00022	0.00000	0.00009	0.00002	0.00000	0.00051	0.00023
513.18	0.00025	0.00000	0.00007	0.00002	0.00001	0.00051	0.00026
513.53	0.00029	0.00000	0.00007	0.00002	0.00001	0.00051	0.00026
513.88	0.00025	0.00000	0.00007	0.00002	0.00002	0.00051	0.00026

514.22	0.00019	0.00000	0.00009	0.00005	0.00004	0.00051	0.00023
514.57	0.00017	0.00000	0.00009	0.00005	0.00004	0.00056	0.00023
514.92	0.00019	0.00001	0.00009	0.00005	0.00005	0.00056	0.00023
515.27	0.00012	0.00003	0.00010	0.00006	0.00007	0.00066	0.00020
515.62	0.00010	0.00001	0.00010	0.00008	0.00008	0.00071	0.00017
515.97	0.00010	0.00002	0.00009	0.00006	0.00008	0.00066	0.00017
516.32	0.00006	0.00000	0.00013	0.00008	0.00010	0.00071	0.00014
516.67	0.00010	0.00000	0.00009	0.00006	0.00008	0.00061	0.00017
517.02	0.00010	0.00000	0.00010	0.00006	0.00007	0.00061	0.00017
517.37	0.00006	0.00000	0.00010	0.00005	0.00008	0.00061	0.00017
517.72	0.00004	0.00000	0.00010	0.00005	0.00008	0.00066	0.00014
518.06	0.00005	0.00000	0.00010	0.00005	0.00010	0.00061	0.00014
518.41	0.00005	0.00000	0.00010	0.00005	0.00010	0.00061	0.00017
518.76	0.00004	0.00000	0.00009	0.00003	0.00010	0.00056	0.00017
519.11	0.00002	0.00001	0.00013	0.00003	0.00012	0.00056	0.00014
519.46	0.00002	0.00002	0.00013	0.00003	0.00012	0.00056	0.00017
519.81	0.00001	0.00003	0.00018	0.00003	0.00015	0.00061	0.00014
520.16	0.00000	0.00003	0.00013	0.00005	0.00017	0.00056	0.00014
520.5	0.00000	0.00002	0.00015	0.00003	0.00017	0.00056	0.00014
520.85	0.00000	0.00003	0.00018	0.00005	0.00020	0.00056	0.00014
521.2	0.00000	0.00003	0.00020	0.00006	0.00023	0.00061	0.00014
521.55	0.00002	0.00002	0.00023	0.00005	0.00023	0.00056	0.00014
521.9	0.00002	0.00002	0.00023	0.00005	0.00023	0.00051	0.00017
522.25	0.00002	0.00000	0.00023	0.00006	0.00023	0.00051	0.00017
522.59	0.00001	0.00000	0.00026	0.00009	0.00026	0.00051	0.00017
522.94	0.00001	0.00000	0.00023	0.00009	0.00026	0.00051	0.00017
523.29	0.00002	0.00000	0.00023	0.00009	0.00026	0.00047	0.00020
523.64	0.00002	0.00000	0.00020	0.00009	0.00026	0.00047	0.00020
523.99	0.00001	0.00001	0.00023	0.00011	0.00026	0.00047	0.00017
524.33	0.00002	0.00000	0.00020	0.00009	0.00026	0.00047	0.00020
524.68	0.00005	0.00001	0.00020	0.00009	0.00023	0.00043	0.00020
525.03	0.00005	0.00001	0.00020	0.00014	0.00026	0.00051	0.00017
525.38	0.00005	0.00002	0.00020	0.00011	0.00026	0.00047	0.00020
525.73	0.00004	0.00002	0.00020	0.00011	0.00026	0.00047	0.00023
526.07	0.00005	0.00002	0.00020	0.00009	0.00026	0.00047	0.00020
526.42	0.00004	0.00001	0.00020	0.00009	0.00029	0.00051	0.00017
526.77	0.00004	0.00002	0.00020	0.00008	0.00023	0.00043	0.00023
527.12	0.00005	0.00002	0.00018	0.00005	0.00023	0.00039	0.00023
527.46	0.00005	0.00001	0.00018	0.00008	0.00029	0.00039	0.00023

527.81	0.00006	0.00001	0.00018	0.00006	0.00029	0.00039	0.00023
528.16	0.00010	0.00001	0.00015	0.00006	0.00029	0.00039	0.00026
528.51	0.00006	0.00000	0.00015	0.00006	0.00029	0.00039	0.00026
528.85	0.00002	0.00000	0.00013	0.00006	0.00023	0.00035	0.00029
529.2	0.00002	0.00000	0.00010	0.00005	0.00020	0.00035	0.00029
529.55	0.00006	0.00000	0.00009	0.00005	0.00020	0.00035	0.00029
529.9	0.00010	0.00000	0.00009	0.00005	0.00020	0.00031	0.00029
530.24	0.00017	0.00000	0.00009	0.00003	0.00017	0.00028	0.00032
530.59	0.00022	0.00000	0.00005	0.00003	0.00017	0.00031	0.00032
530.94	0.00017	0.00001	0.00007	0.00005	0.00017	0.00035	0.00032
531.29	0.00022	0.00001	0.00007	0.00003	0.00017	0.00031	0.00032
531.63	0.00022	0.00001	0.00007	0.00003	0.00017	0.00035	0.00029
531.98	0.00022	0.00001	0.00009	0.00005	0.00015	0.00035	0.00026
532.33	0.00025	0.00001	0.00007	0.00002	0.00015	0.00031	0.00029
532.67	0.00025	0.00001	0.00007	0.00002	0.00017	0.00031	0.00026
533.02	0.00029	0.00001	0.00005	0.00002	0.00017	0.00028	0.00026
533.37	0.00022	0.00002	0.00007	0.00002	0.00017	0.00028	0.00023
533.71	0.00014	0.00001	0.00009	0.00005	0.00023	0.00031	0.00020
534.06	0.00008	0.00002	0.00010	0.00006	0.00026	0.00031	0.00020
534.41	0.00005	0.00002	0.00013	0.00008	0.00026	0.00031	0.00020
534.75	0.00008	0.00001	0.00013	0.00008	0.00029	0.00031	0.00017
535.1	0.00005	0.00001	0.00015	0.00009	0.00029	0.00031	0.00020
535.45	0.00006	0.00003	0.00015	0.00011	0.00033	0.00031	0.00017
535.79	0.00005	0.00002	0.00015	0.00014	0.00033	0.00031	0.00017
536.14	0.00004	0.00003	0.00018	0.00016	0.00033	0.00035	0.00020
536.49	0.00008	0.00003	0.00015	0.00016	0.00029	0.00031	0.00023
536.83	0.00006	0.00002	0.00018	0.00019	0.00033	0.00035	0.00023
537.18	0.00008	0.00001	0.00020	0.00019	0.00033	0.00031	0.00023
537.53	0.00010	0.00001	0.00018	0.00016	0.00029	0.00028	0.00026
537.87	0.00017	0.00001	0.00015	0.00019	0.00029	0.00028	0.00026
538.22	0.00022	0.00000	0.00015	0.00016	0.00026	0.00021	0.00029
538.57	0.00019	0.00001	0.00018	0.00016	0.00026	0.00024	0.00029
538.91	0.00029	0.00000	0.00015	0.00014	0.00020	0.00021	0.00029
539.26	0.00025	0.00001	0.00018	0.00011	0.00020	0.00021	0.00029
539.6	0.00025	0.00004	0.00020	0.00019	0.00026	0.00021	0.00026
539.95	0.00029	0.00001	0.00020	0.00016	0.00023	0.00016	0.00026
540.3	0.00025	0.00002	0.00020	0.00016	0.00023	0.00019	0.00026
540.64	0.00032	0.00004	0.00020	0.00016	0.00023	0.00016	0.00023
540.99	0.00029	0.00006	0.00020	0.00019	0.00020	0.00016	0.00023

541.33	0.00025	0.00008	0.00015	0.00019	0.00017	0.00019	0.00020
541.68	0.00017	0.00006	0.00018	0.00019	0.00017	0.00019	0.00020
542.02	0.00010	0.00006	0.00018	0.00016	0.00017	0.00019	0.00020
542.37	0.00010	0.00010	0.00015	0.00014	0.00017	0.00021	0.00017
542.72	0.00006	0.00010	0.00015	0.00016	0.00020	0.00021	0.00020
543.06	0.00004	0.00010	0.00015	0.00019	0.00020	0.00024	0.00017
543.41	0.00002	0.00008	0.00015	0.00016	0.00023	0.00024	0.00017
543.75	0.00002	0.00006	0.00015	0.00016	0.00023	0.00024	0.00017
544.1	0.00002	0.00006	0.00013	0.00016	0.00023	0.00021	0.00017
544.44	0.00002	0.00004	0.00013	0.00014	0.00023	0.00021	0.00017
544.79	0.00002	0.00003	0.00013	0.00011	0.00023	0.00021	0.00020
545.13	0.00002	0.00005	0.00018	0.00016	0.00029	0.00021	0.00017
545.48	0.00005	0.00004	0.00015	0.00019	0.00033	0.00021	0.00017
545.82	0.00005	0.00003	0.00015	0.00019	0.00029	0.00021	0.00020
546.17	0.00006	0.00002	0.00018	0.00022	0.00033	0.00019	0.00017
546.52	0.00005	0.00003	0.00015	0.00022	0.00033	0.00019	0.00014
546.86	0.00004	0.00004	0.00015	0.00022	0.00033	0.00019	0.00014
547.21	0.00002	0.00005	0.00015	0.00022	0.00033	0.00016	0.00014
547.55	0.00004	0.00008	0.00010	0.00022	0.00033	0.00016	0.00014
547.9	0.00004	0.00008	0.00013	0.00022	0.00029	0.00016	0.00014
548.24	0.00002	0.00010	0.00013	0.00025	0.00029	0.00016	0.00012
548.59	0.00002	0.00008	0.00015	0.00025	0.00029	0.00016	0.00010
548.93	0.00002	0.00008	0.00020	0.00022	0.00029	0.00019	0.00010
549.28	0.00002	0.00008	0.00026	0.00022	0.00029	0.00019	0.00010
549.62	0.00002	0.00008	0.00026	0.00022	0.00029	0.00019	0.00010
549.96	0.00000	0.00006	0.00026	0.00022	0.00029	0.00019	0.00010
550.31	0.00001	0.00006	0.00023	0.00022	0.00029	0.00016	0.00012
550.65	0.00002	0.00005	0.00030	0.00025	0.00029	0.00019	0.00010
551	0.00002	0.00006	0.00033	0.00025	0.00026	0.00019	0.00010
551.34	0.00001	0.00005	0.00030	0.00022	0.00023	0.00019	0.00012
551.69	0.00000	0.00004	0.00033	0.00025	0.00023	0.00021	0.00012
552.03	0.00001	0.00003	0.00030	0.00025	0.00026	0.00021	0.00010
552.38	0.00001	0.00004	0.00026	0.00025	0.00026	0.00019	0.00012
552.72	0.00002	0.00004	0.00023	0.00025	0.00026	0.00019	0.00012
553.07	0.00000	0.00004	0.00023	0.00028	0.00026	0.00021	0.00008
553.41	0.00000	0.00004	0.00023	0.00025	0.00026	0.00019	0.00008
553.75	0.00002	0.00003	0.00018	0.00022	0.00023	0.00019	0.00008
554.1	0.00004	0.00002	0.00023	0.00022	0.00023	0.00019	0.00008
554.44	0.00005	0.00003	0.00018	0.00019	0.00023	0.00014	0.00008

554.79	0.00002	0.00003	0.00013	0.00019	0.00023	0.00014	0.00006
555.13	0.00002	0.00003	0.00018	0.00016	0.00026	0.00014	0.00005
555.47	0.00002	0.00003	0.00018	0.00019	0.00033	0.00014	0.00004
555.82	0.00001	0.00006	0.00018	0.00019	0.00029	0.00014	0.00004
556.16	0.00001	0.00008	0.00020	0.00022	0.00029	0.00014	0.00004
556.51	0.00000	0.00006	0.00020	0.00022	0.00029	0.00014	0.00003
556.85	0.00000	0.00012	0.00020	0.00022	0.00029	0.00014	0.00003
557.19	0.00000	0.00012	0.00018	0.00025	0.00029	0.00011	0.00002
557.54	0.00000	0.00014	0.00023	0.00025	0.00029	0.00014	0.00002
557.88	0.00000	0.00017	0.00023	0.00025	0.00029	0.00014	0.00002
558.22	0.00000	0.00017	0.00023	0.00025	0.00033	0.00014	0.00001
558.57	0.00002	0.00012	0.00026	0.00025	0.00029	0.00014	0.00001
558.91	0.00004	0.00008	0.00020	0.00022	0.00029	0.00011	0.00002
559.26	0.00008	0.00008	0.00018	0.00019	0.00026	0.00014	0.00002
559.6	0.00008	0.00004	0.00013	0.00016	0.00023	0.00011	0.00003
559.94	0.00008	0.00003	0.00015	0.00016	0.00023	0.00011	0.00003
560.29	0.00010	0.00004	0.00013	0.00014	0.00020	0.00014	0.00003
560.63	0.00006	0.00004	0.00009	0.00011	0.00017	0.00014	0.00002
560.97	0.00005	0.00003	0.00009	0.00011	0.00017	0.00016	0.00002
561.32	0.00002	0.00002	0.00010	0.00011	0.00017	0.00016	0.00002
561.66	0.00002	0.00001	0.00009	0.00011	0.00017	0.00016	0.00002
562	0.00000	0.00003	0.00009	0.00014	0.00017	0.00019	0.00002
562.34	0.00000	0.00004	0.00009	0.00014	0.00020	0.00021	0.00001
562.69	0.00001	0.00008	0.00009	0.00016	0.00020	0.00024	0.00000
563.03	0.00003	0.00008	0.00009	0.00014	0.00020	0.00021	0.00000
563.37	0.00003	0.00010	0.00015	0.00019	0.00023	0.00024	0.00000
563.72	0.00003	0.00010	0.00013	0.00014	0.00017	0.00024	0.00000
564.06	0.00002	0.00010	0.00013	0.00014	0.00020	0.00021	0.00000
564.4	0.00003	0.00010	0.00015	0.00016	0.00023	0.00021	0.00000
564.75	0.00002	0.00010	0.00013	0.00016	0.00023	0.00021	0.00000
565.09	0.00001	0.00012	0.00015	0.00014	0.00020	0.00021	0.00000
565.43	0.00001	0.00012	0.00015	0.00011	0.00020	0.00024	0.00000
565.77	0.00001	0.00008	0.00018	0.00009	0.00020	0.00024	0.00000
566.12	0.00002	0.00008	0.00015	0.00008	0.00017	0.00024	0.00000
566.46	0.00000	0.00004	0.00018	0.00006	0.00012	0.00019	0.00000
566.8	0.00003	0.00005	0.00018	0.00006	0.00015	0.00021	0.00000
567.14	0.00004	0.00004	0.00015	0.00006	0.00015	0.00021	0.00000
567.49	0.00005	0.00005	0.00020	0.00008	0.00017	0.00024	0.00000
567.83	0.00010	0.00005	0.00026	0.00008	0.00017	0.00028	0.00000

568.17	0.00007	0.00005	0.00026	0.00008	0.00015	0.00028	0.00000
568.51	0.00012	0.00004	0.00026	0.00006	0.00012	0.00028	0.00000
568.85	0.00012	0.00002	0.00020	0.00008	0.00010	0.00028	0.00000
569.2	0.00007	0.00003	0.00015	0.00008	0.00010	0.00021	0.00000
569.54	0.00008	0.00005	0.00010	0.00008	0.00012	0.00024	0.00000
569.88	0.00005	0.00006	0.00010	0.00008	0.00012	0.00024	0.00000
570.22	0.00008	0.00008	0.00007	0.00008	0.00012	0.00024	0.00000
570.57	0.00007	0.00006	0.00007	0.00008	0.00010	0.00028	0.00000
570.91	0.00008	0.00008	0.00009	0.00009	0.00012	0.00031	0.00000
571.25	0.00008	0.00005	0.00004	0.00008	0.00010	0.00031	0.00000
571.59	0.00005	0.00003	0.00004	0.00008	0.00010	0.00031	0.00000
571.93	0.00004	0.00002	0.00004	0.00006	0.00010	0.00031	0.00000
572.27	0.00003	0.00002	0.00002	0.00005	0.00010	0.00035	0.00001
572.62	0.00003	0.00004	0.00004	0.00006	0.00015	0.00039	0.00001
572.96	0.00010	0.00004	0.00004	0.00008	0.00015	0.00043	0.00002
573.3	0.00010	0.00005	0.00005	0.00008	0.00012	0.00039	0.00002
573.64	0.00015	0.00008	0.00007	0.00008	0.00015	0.00043	0.00002
573.98	0.00012	0.00012	0.00009	0.00011	0.00017	0.00047	0.00004
574.32	0.00007	0.00008	0.00007	0.00011	0.00020	0.00047	0.00004
574.67	0.00005	0.00012	0.00007	0.00011	0.00020	0.00047	0.00004
575.01	0.00003	0.00012	0.00005	0.00009	0.00015	0.00043	0.00004
575.35	0.00004	0.00020	0.00005	0.00011	0.00015	0.00047	0.00004
575.69	0.00010	0.00020	0.00005	0.00014	0.00015	0.00047	0.00005
576.03	0.00008	0.00029	0.00009	0.00016	0.00017	0.00047	0.00006
576.37	0.00007	0.00036	0.00007	0.00011	0.00012	0.00051	0.00006
576.71	0.00004	0.00033	0.00009	0.00009	0.00015	0.00051	0.00008
577.05	0.00004	0.00026	0.00010	0.00009	0.00012	0.00056	0.00008
577.4	0.00002	0.00023	0.00009	0.00009	0.00012	0.00051	0.00008
577.74	0.00004	0.00017	0.00009	0.00008	0.00012	0.00051	0.00008
578.08	0.00007	0.00026	0.00009	0.00008	0.00008	0.00051	0.00008
578.42	0.00005	0.00026	0.00009	0.00008	0.00008	0.00051	0.00010
578.76	0.00008	0.00023	0.00010	0.00008	0.00010	0.00056	0.00010
579.1	0.00007	0.00023	0.00013	0.00006	0.00008	0.00056	0.00010
579.44	0.00002	0.00026	0.00015	0.00006	0.00010	0.00051	0.00010
579.78	0.00003	0.00020	0.00015	0.00006	0.00008	0.00056	0.00010
580.12	0.00003	0.00012	0.00015	0.00006	0.00010	0.00051	0.00010
580.46	0.00008	0.00017	0.00015	0.00009	0.00015	0.00056	0.00012
580.8	0.00008	0.00014	0.00020	0.00008	0.00012	0.00051	0.00010
581.14	0.00015	0.00012	0.00020	0.00008	0.00010	0.00051	0.00010

581.49	0.00010	0.00020	0.00020	0.00008	0.00008	0.00051	0.00008
581.83	0.00010	0.00014	0.00020	0.00006	0.00008	0.00047	0.00008
582.17	0.00017	0.00020	0.00018	0.00008	0.00008	0.00051	0.00010
582.51	0.00015	0.00017	0.00015	0.00009	0.00010	0.00056	0.00010
582.85	0.00023	0.00020	0.00018	0.00014	0.00015	0.00056	0.00014
583.19	0.00026	0.00023	0.00013	0.00014	0.00015	0.00056	0.00012
583.53	0.00026	0.00029	0.00013	0.00016	0.00017	0.00056	0.00014
583.87	0.00040	0.00026	0.00013	0.00019	0.00020	0.00066	0.00014
584.21	0.00044	0.00026	0.00020	0.00019	0.00020	0.00066	0.00017
584.55	0.00053	0.00040	0.00018	0.00022	0.00020	0.00076	0.00017
584.89	0.00040	0.00036	0.00018	0.00022	0.00017	0.00071	0.00017
585.23	0.00063	0.00029	0.00020	0.00022	0.00020	0.00071	0.00020
585.57	0.00068	0.00029	0.00020	0.00025	0.00026	0.00076	0.00022
585.91	0.00079	0.00026	0.00023	0.00022	0.00023	0.00076	0.00022
586.25	0.00085	0.00033	0.00026	0.00025	0.00023	0.00076	0.00022
586.59	0.00109	0.00036	0.00026	0.00025	0.00023	0.00076	0.00026
586.93	0.00109	0.00029	0.00026	0.00025	0.00023	0.00082	0.00026
587.27	0.00109	0.00029	0.00026	0.00019	0.00020	0.00082	0.00020
587.61	0.00090	0.00033	0.00026	0.00019	0.00017	0.00076	0.00020
587.95	0.00097	0.00029	0.00026	0.00019	0.00015	0.00076	0.00020
588.29	0.00079	0.00026	0.00023	0.00016	0.00017	0.00076	0.00017
588.63	0.00097	0.00029	0.00026	0.00016	0.00020	0.00082	0.00017
588.97	0.00073	0.00033	0.00023	0.00019	0.00020	0.00088	0.00017
589.3	0.00068	0.00036	0.00026	0.00016	0.00023	0.00094	0.00020
589.64	0.00073	0.00036	0.00033	0.00019	0.00023	0.00094	0.00020
589.98	0.00079	0.00033	0.00030	0.00014	0.00023	0.00082	0.00017
590.32	0.00068	0.00036	0.00033	0.00016	0.00026	0.00088	0.00017
590.66	0.00053	0.00036	0.00033	0.00014	0.00023	0.00082	0.00017
591	0.00044	0.00040	0.00033	0.00016	0.00023	0.00082	0.00017
591.34	0.00053	0.00049	0.00030	0.00014	0.00026	0.00082	0.00022
591.68	0.00053	0.00049	0.00026	0.00014	0.00029	0.00076	0.00022
592.02	0.00058	0.00053	0.00030	0.00019	0.00026	0.00082	0.00022
592.36	0.00044	0.00049	0.00033	0.00016	0.00029	0.00076	0.00022
592.7	0.00044	0.00053	0.00033	0.00019	0.00029	0.00082	0.00026
593.04	0.00044	0.00053	0.00037	0.00019	0.00029	0.00082	0.00026
593.37	0.00040	0.00058	0.00037	0.00022	0.00029	0.00082	0.00029
593.71	0.00058	0.00049	0.00041	0.00025	0.00029	0.00082	0.00029
594.05	0.00053	0.00044	0.00049	0.00025	0.00026	0.00082	0.00029
594.39	0.00073	0.00049	0.00049	0.00025	0.00029	0.00082	0.00026

594.73	0.00073	0.00033	0.00045	0.00022	0.00029	0.00082	0.00022
595.07	0.00079	0.00029	0.00054	0.00031	0.00029	0.00082	0.00022
595.41	0.00063	0.00023	0.00054	0.00031	0.00026	0.00082	0.00026
595.75	0.00079	0.00026	0.00059	0.00035	0.00029	0.00082	0.00029
596.08	0.00079	0.00026	0.00049	0.00031	0.00026	0.00076	0.00029
596.42	0.00085	0.00020	0.00054	0.00031	0.00023	0.00071	0.00022
596.76	0.00079	0.00014	0.00049	0.00031	0.00023	0.00066	0.00022
597.1	0.00058	0.00014	0.00049	0.00028	0.00023	0.00071	0.00022
597.44	0.00036	0.00012	0.00045	0.00028	0.00023	0.00066	0.00022
597.78	0.00040	0.00008	0.00037	0.00022	0.00020	0.00066	0.00022
598.11	0.00033	0.00006	0.00033	0.00019	0.00010	0.00066	0.00020
598.45	0.00049	0.00014	0.00033	0.00019	0.00012	0.00066	0.00020
598.79	0.00049	0.00020	0.00033	0.00011	0.00012	0.00061	0.00017
599.13	0.00049	0.00029	0.00033	0.00014	0.00010	0.00061	0.00017
599.47	0.00040	0.00026	0.00023	0.00011	0.00008	0.00051	0.00012
599.81	0.00040	0.00023	0.00020	0.00011	0.00007	0.00056	0.00014
600.14	0.00036	0.00026	0.00015	0.00011	0.00007	0.00047	0.00014
600.48	0.00053	0.00029	0.00023	0.00009	0.00008	0.00051	0.00014
600.82	0.00063	0.00026	0.00020	0.00008	0.00005	0.00043	0.00012
601.16	0.00058	0.00029	0.00018	0.00006	0.00004	0.00047	0.00014
601.49	0.00049	0.00036	0.00018	0.00008	0.00004	0.00043	0.00014
601.83	0.00044	0.00040	0.00010	0.00006	0.00008	0.00039	0.00012
602.17	0.00036	0.00026	0.00007	0.00008	0.00008	0.00035	0.00012
602.51	0.00023	0.00014	0.00005	0.00008	0.00008	0.00031	0.00008
602.85	0.00023	0.00012	0.00003	0.00006	0.00010	0.00028	0.00006
603.18	0.00026	0.00005	0.00003	0.00006	0.00010	0.00028	0.00005
603.52	0.00044	0.00006	0.00004	0.00005	0.00012	0.00024	0.00004
603.86	0.00040	0.00010	0.00004	0.00006	0.00010	0.00028	0.00005
604.2	0.00026	0.00008	0.00001	0.00005	0.00007	0.00024	0.00004
604.53	0.00033	0.00012	0.00000	0.00002	0.00007	0.00021	0.00004
604.87	0.00036	0.00017	0.00001	0.00002	0.00008	0.00021	0.00004
605.21	0.00040	0.00023	0.00000	0.00001	0.00007	0.00016	0.00004
605.54	0.00033	0.00020	0.00001	0.00002	0.00005	0.00021	0.00005
605.88	0.00058	0.00029	0.00003	0.00002	0.00005	0.00024	0.00006
606.22	0.00063	0.00033	0.00005	0.00003	0.00004	0.00024	0.00010
606.56	0.00053	0.00036	0.00009	0.00002	0.00002	0.00024	0.00012
606.89	0.00044	0.00040	0.00007	0.00000	0.00001	0.00021	0.00012
607.23	0.00020	0.00040	0.00007	0.00000	0.00001	0.00019	0.00010
607.57	0.00017	0.00029	0.00009	0.00001	0.00000	0.00019	0.00006

607.9	0.00020	0.00029	0.00010	0.00002	0.00001	0.00019	0.00008
608.24	0.00010	0.00029	0.00009	0.00002	0.00001	0.00016	0.00006
608.58	0.00005	0.00029	0.00007	0.00003	0.00000	0.00014	0.00004
608.91	0.00002	0.00029	0.00013	0.00002	0.00000	0.00016	0.00004
609.25	0.00000	0.00023	0.00013	0.00002	0.00001	0.00016	0.00004
609.59	0.00000	0.00023	0.00013	0.00002	0.00000	0.00014	0.00004
609.92	0.00002	0.00020	0.00010	0.00004	0.00000	0.00014	0.00004
610.26	0.00004	0.00010	0.00009	0.00003	0.00000	0.00014	0.00002
610.6	0.00008	0.00010	0.00010	0.00000	0.00001	0.00019	0.00002
610.93	0.00002	0.00004	0.00007	0.00000	0.00000	0.00019	0.00002
611.27	0.00002	0.00005	0.00009	0.00000	0.00000	0.00016	0.00002
611.61	0.00004	0.00012	0.00007	0.00001	0.00000	0.00016	0.00002
611.94	0.00002	0.00005	0.00007	0.00000	0.00000	0.00016	0.00002
612.28	0.00002	0.00000	0.00004	0.00001	0.00002	0.00014	0.00002
612.61	0.00000	0.00002	0.00001	0.00000	0.00003	0.00011	0.00002
612.95	0.00000	0.00005	0.00001	0.00000	0.00002	0.00009	0.00000
613.29	0.00001	0.00008	0.00000	0.00000	0.00002	0.00007	0.00000
613.62	0.00000	0.00005	0.00001	0.00000	0.00003	0.00004	0.00000
613.96	0.00008	0.00002	0.00005	0.00000	0.00002	0.00003	0.00000
614.3	0.00012	0.00005	0.00008	0.00000	0.00001	0.00001	0.00000
614.63	0.00004	0.00004	0.00019	0.00001	0.00001	0.00000	0.00000
614.97	0.00012	0.00002	0.00028	0.00000	0.00003	0.00001	0.00001
615.3	0.00017	0.00005	0.00032	0.00002	0.00001	0.00000	0.00001
615.64	0.00012	0.00004	0.00043	0.00001	0.00001	0.00000	0.00000
615.97	0.00015	0.00001	0.00047	0.00002	0.00000	0.00000	0.00000
616.31	0.00007	0.00001	0.00052	0.00004	0.00000	0.00001	0.00000
616.65	0.00007	0.00000	0.00066	0.00005	0.00000	0.00001	0.00000
616.98	0.00012	0.00000	0.00077	0.00009	0.00000	0.00000	0.00000
617.32	0.00008	0.00000	0.00066	0.00009	0.00001	0.00001	0.00000
617.65	0.00003	0.00001	0.00072	0.00009	0.00001	0.00000	0.00000
617.99	0.00005	0.00000	0.00056	0.00005	0.00001	0.00001	0.00002
618.32	0.00001	0.00000	0.00039	0.00004	0.00001	0.00001	0.00002
618.66	0.00000	0.00002	0.00035	0.00007	0.00005	0.00001	0.00002
618.99	0.00000	0.00002	0.00043	0.00009	0.00003	0.00003	0.00002
619.33	0.00003	0.00001	0.00032	0.00009	0.00002	0.00002	0.00002
619.66	0.00007	0.00002	0.00028	0.00009	0.00005	0.00002	0.00002
620	0.00015	0.00005	0.00022	0.00005	0.00006	0.00001	0.00004
620.33	0.00017	0.00008	0.00022	0.00004	0.00006	0.00001	0.00004
620.67	0.00017	0.00008	0.00028	0.00004	0.00006	0.00001	0.00005

621	0.00026	0.00004	0.00025	0.00005	0.00003	0.00000	0.00005
621.34	0.00010	0.00004	0.00019	0.00009	0.00001	0.00000	0.00006
621.67	0.00008	0.00008	0.00019	0.00013	0.00001	0.00000	0.00005
622.01	0.00020	0.00005	0.00014	0.00013	0.00000	0.00000	0.00006
622.34	0.00020	0.00002	0.00014	0.00013	0.00000	0.00000	0.00005
622.68	0.00012	0.00000	0.00010	0.00009	0.00000	0.00000	0.00005
623.01	0.00003	0.00006	0.00016	0.00013	0.00001	0.00001	0.00002
623.35	0.00001	0.00002	0.00012	0.00015	0.00000	0.00001	0.00002
623.68	0.00004	0.00002	0.00012	0.00018	0.00000	0.00000	0.00004
624.02	0.00010	0.00002	0.00006	0.00015	0.00001	0.00000	0.00004
624.35	0.00017	0.00000	0.00008	0.00011	0.00001	0.00000	0.00005
624.69	0.00029	0.00000	0.00008	0.00007	0.00002	0.00000	0.00008
625.02	0.00019	0.00001	0.00008	0.00007	0.00005	0.00000	0.00008
625.36	0.00032	0.00000	0.00010	0.00005	0.00003	0.00000	0.00010
625.69	0.00048	0.00000	0.00014	0.00009	0.00003	0.00001	0.00010
626.02	0.00044	0.00000	0.00016	0.00005	0.00003	0.00000	0.00010
626.36	0.00025	0.00001	0.00010	0.00005	0.00001	0.00000	0.00014
626.69	0.00029	0.00000	0.00008	0.00005	0.00003	0.00001	0.00017
627.03	0.00017	0.00002	0.00014	0.00003	0.00003	0.00001	0.00022
627.36	0.00005	0.00014	0.00010	0.00005	0.00005	0.00000	0.00020
627.7	0.00000	0.00008	0.00016	0.00009	0.00005	0.00000	0.00022
628.03	0.00001	0.00006	0.00012	0.00015	0.00006	0.00000	0.00020
628.36	0.00000	0.00004	0.00016	0.00015	0.00006	0.00000	0.00017
628.7	0.00000	0.00000	0.00016	0.00015	0.00005	0.00000	0.00020
629.03	0.00003	0.00000	0.00016	0.00015	0.00008	0.00001	0.00017
629.36	0.00004	0.00005	0.00016	0.00013	0.00012	0.00002	0.00022
629.7	0.00001	0.00010	0.00019	0.00013	0.00017	0.00001	0.00026
630.03	0.00000	0.00008	0.00022	0.00015	0.00019	0.00002	0.00029
630.37	0.00007	0.00012	0.00028	0.00013	0.00014	0.00001	0.00032
630.7	0.00012	0.00006	0.00016	0.00013	0.00017	0.00002	0.00032
631.03	0.00007	0.00008	0.00019	0.00007	0.00012	0.00003	0.00029
631.37	0.00000	0.00017	0.00019	0.00013	0.00019	0.00004	0.00029
631.7	0.00000	0.00019	0.00014	0.00011	0.00017	0.00003	0.00029
632.03	0.00000	0.00019	0.00014	0.00013	0.00014	0.00004	0.00029
632.37	0.00000	0.00022	0.00019	0.00018	0.00017	0.00007	0.00029
632.7	0.00001	0.00029	0.00028	0.00018	0.00022	0.00007	0.00022
633.03	0.00000	0.00025	0.00019	0.00023	0.00025	0.00007	0.00022
633.37	0.00001	0.00014	0.00008	0.00023	0.00025	0.00007	0.00022
633.7	0.00000	0.00014	0.00008	0.00033	0.00025	0.00007	0.00020

634.03	0.00000	0.00006	0.00005	0.00033	0.00019	0.00009	0.00020
634.37	0.00008	0.00014	0.00008	0.00030	0.00022	0.00013	0.00014
634.7	0.00005	0.00012	0.00008	0.00037	0.00025	0.00015	0.00020
635.03	0.00000	0.00004	0.00005	0.00030	0.00017	0.00015	0.00026
635.37	0.00000	0.00000	0.00005	0.00030	0.00025	0.00015	0.00026
635.7	0.00000	0.00002	0.00005	0.00030	0.00036	0.00013	0.00022
636.03	0.00000	0.00001	0.00003	0.00020	0.00036	0.00011	0.00026
636.36	0.00002	0.00001	0.00005	0.00027	0.00025	0.00011	0.00026
636.7	0.00002	0.00001	0.00005	0.00027	0.00019	0.00009	0.00029
637.03	0.00000	0.00002	0.00006	0.00020	0.00014	0.00011	0.00032
637.36	0.00001	0.00000	0.00005	0.00015	0.00017	0.00011	0.00036
637.69	0.00004	0.00000	0.00001	0.00011	0.00019	0.00009	0.00040
638.03	0.00001	0.00000	0.00002	0.00011	0.00014	0.00005	0.00044
638.36	0.00000	0.00001	0.00006	0.00015	0.00017	0.00004	0.00044
638.69	0.00000	0.00000	0.00006	0.00011	0.00014	0.00002	0.00048
639.02	0.00000	0.00004	0.00008	0.00009	0.00008	0.00001	0.00058
639.36	0.00000	0.00000	0.00006	0.00007	0.00003	0.00002	0.00062
639.69	0.00002	0.00001	0.00006	0.00007	0.00005	0.00002	0.00058
640.02	0.00008	0.00004	0.00006	0.00004	0.00010	0.00004	0.00058
640.35	0.00007	0.00002	0.00010	0.00003	0.00010	0.00004	0.00053
640.69	0.00002	0.00002	0.00016	0.00003	0.00014	0.00004	0.00048
641.02	0.00001	0.00004	0.00025	0.00007	0.00008	0.00003	0.00053
641.35	0.00001	0.00012	0.00039	0.00009	0.00008	0.00005	0.00044
641.68	0.00000	0.00005	0.00043	0.00007	0.00006	0.00005	0.00044
642.01	0.00002	0.00006	0.00035	0.00005	0.00005	0.00009	0.00040
642.35	0.00000	0.00002	0.00028	0.00007	0.00008	0.00011	0.00040
642.68	0.00000	0.00000	0.00028	0.00007	0.00005	0.00013	0.00040
643.01	0.00000	0.00001	0.00028	0.00007	0.00003	0.00013	0.00040
643.34	0.00000	0.00000	0.00028	0.00011	0.00001	0.00009	0.00040
643.67	0.00000	0.00004	0.00032	0.00007	0.00000	0.00004	0.00044
644	0.00000	0.00003	0.00022	0.00004	0.00000	0.00005	0.00040
644.34	0.00000	0.00002	0.00028	0.00003	0.00002	0.00004	0.00044
644.67	0.00001	0.00000	0.00028	0.00002	0.00000	0.00004	0.00044
645	0.00000	0.00005	0.00032	0.00003	0.00000	0.00003	0.00040
645.33	0.00001	0.00001	0.00032	0.00004	0.00001	0.00003	0.00044
645.66	0.00000	0.00002	0.00043	0.00003	0.00001	0.00005	0.00040
645.99	0.00001	0.00004	0.00052	0.00002	0.00000	0.00004	0.00040
646.32	0.00008	0.00001	0.00061	0.00004	0.00001	0.00005	0.00032
646.66	0.00017	0.00002	0.00066	0.00007	0.00003	0.00009	0.00029

646.99	0.00004	0.00002	0.00056	0.00004	0.00005	0.00013	0.00029
647.32	0.00001	0.00001	0.00043	0.00004	0.00006	0.00013	0.00032
647.65	0.00004	0.00006	0.00052	0.00005	0.00008	0.00015	0.00032
647.98	0.00004	0.00010	0.00047	0.00011	0.00012	0.00015	0.00036
648.31	0.00004	0.00012	0.00043	0.00011	0.00017	0.00018	0.00036
648.64	0.00001	0.00004	0.00035	0.00013	0.00019	0.00024	0.00032
648.97	0.00000	0.00010	0.00025	0.00013	0.00022	0.00027	0.00036
649.3	0.00008	0.00005	0.00019	0.00013	0.00022	0.00027	0.00036
649.64	0.00010	0.00004	0.00016	0.00011	0.00019	0.00027	0.00044
649.97	0.00004	0.00004	0.00012	0.00007	0.00012	0.00021	0.00044
650.3	0.00005	0.00006	0.00010	0.00004	0.00012	0.00015	0.00048
650.63	0.00017	0.00012	0.00012	0.00011	0.00014	0.00015	0.00048
650.96	0.00040	0.00010	0.00008	0.00011	0.00017	0.00018	0.00053
651.29	0.00048	0.00004	0.00019	0.00013	0.00019	0.00027	0.00040
651.62	0.00044	0.00000	0.00025	0.00018	0.00022	0.00038	0.00029
651.95	0.00044	0.00002	0.00022	0.00018	0.00012	0.00038	0.00032
652.28	0.00032	0.00000	0.00022	0.00018	0.00010	0.00034	0.00036
652.61	0.00040	0.00000	0.00035	0.00020	0.00012	0.00038	0.00029
652.94	0.00040	0.00001	0.00032	0.00023	0.00012	0.00041	0.00022
653.27	0.00036	0.00000	0.00022	0.00030	0.00017	0.00050	0.00014
653.6	0.00048	0.00001	0.00019	0.00037	0.00022	0.00070	0.00012
653.93	0.00022	0.00004	0.00022	0.00030	0.00032	0.00064	0.00010
654.26	0.00019	0.00005	0.00022	0.00030	0.00025	0.00075	0.00008
654.59	0.00008	0.00005	0.00019	0.00033	0.00017	0.00064	0.00008
654.92	0.00006	0.00002	0.00008	0.00050	0.00017	0.00055	0.00008
655.25	0.00000	0.00000	0.00005	0.00037	0.00019	0.00050	0.00012
655.58	0.00000	0.00000	0.00003	0.00030	0.00017	0.00046	0.00010
655.91	0.00004	0.00000	0.00005	0.00030	0.00012	0.00046	0.00008
656.24	0.00004	0.00000	0.00000	0.00030	0.00010	0.00046	0.00012
656.57	0.00002	0.00000	0.00001	0.00030	0.00010	0.00055	0.00012
656.9	0.00008	0.00006	0.00003	0.00033	0.00014	0.00055	0.00012
657.23	0.00008	0.00002	0.00008	0.00041	0.00017	0.00041	0.00012
657.56	0.00008	0.00002	0.00012	0.00050	0.00014	0.00064	0.00012
657.89	0.00012	0.00006	0.00028	0.00050	0.00014	0.00075	0.00014
658.22	0.00019	0.00017	0.00032	0.00037	0.00019	0.00086	0.00012
658.55	0.00040	0.00044	0.00052	0.00030	0.00025	0.00092	0.00010
658.88	0.00072	0.00073	0.00061	0.00033	0.00025	0.00118	0.00005
659.21	0.00090	0.00102	0.00083	0.00033	0.00028	0.00132	0.00005
659.54	0.00102	0.00096	0.00089	0.00030	0.00028	0.00155	0.00005

659.87	0.00062	0.00096	0.00121	0.00037	0.00036	0.00155	0.00002
660.2	0.00053	0.00078	0.00135	0.00033	0.00044	0.00147	0.00005
660.53	0.00053	0.00044	0.00150	0.00045	0.00048	0.00155	0.00006
660.85	0.00067	0.00053	0.00135	0.00041	0.00062	0.00188	0.00004
661.18	0.00108	0.00096	0.00150	0.00069	0.00062	0.00179	0.00002
661.51	0.00136	0.00053	0.00121	0.00059	0.00067	0.00197	0.00000
661.84	0.00122	0.00036	0.00121	0.00074	0.00072	0.00206	0.00000
662.17	0.00084	0.00019	0.00095	0.00092	0.00078	0.00206	0.00000
662.5	0.00108	0.00000	0.00083	0.00104	0.00078	0.00224	0.00000
662.83	0.00084	0.00000	0.00066	0.00111	0.00067	0.00188	0.00002
663.16	0.00062	0.00000	0.00066	0.00124	0.00083	0.00197	0.00002
663.49	0.00115	0.00000	0.00089	0.00124	0.00089	0.00206	0.00002
663.81	0.00144	0.00001	0.00077	0.00132	0.00067	0.00215	0.00002
664.14	0.00115	0.00000	0.00077	0.00098	0.00067	0.00197	0.00002
664.47	0.00144	0.00004	0.00089	0.00124	0.00067	0.00215	0.00005
664.8	0.00084	0.00000	0.00061	0.00098	0.00078	0.00244	0.00005
665.13	0.00072	0.00000	0.00066	0.00132	0.00078	0.00254	0.00004
665.46	0.00122	0.00001	0.00052	0.00139	0.00072	0.00215	0.00008
665.79	0.00202	0.00000	0.00072	0.00132	0.00083	0.00224	0.00010
666.11	0.00184	0.00025	0.00114	0.00162	0.00115	0.00224	0.00008
666.44	0.00280	0.00044	0.00128	0.00139	0.00136	0.00285	0.00005
666.77	0.00371	0.00053	0.00166	0.00111	0.00129	0.00274	0.00002
667.1	0.00383	0.00040	0.00135	0.00111	0.00115	0.00274	0.00004
667.43	0.00302	0.00044	0.00174	0.00132	0.00129	0.00296	0.00004
667.76	0.00302	0.00032	0.00209	0.00162	0.00122	0.00274	0.00004
668.08	0.00270	0.00036	0.00278	0.00162	0.00129	0.00264	0.00000
668.41	0.00503	0.00096	0.00268	0.00170	0.00108	0.00244	0.00001
668.74	0.00517	0.00185	0.00311	0.00132	0.00083	0.00215	0.00001
669.07	0.00422	0.00230	0.00369	0.00118	0.00078	0.00244	0.00000
669.4	0.00280	0.00211	0.00381	0.00118	0.00083	0.00274	0.00000
669.72	0.00291	0.00160	0.00311	0.00080	0.00048	0.00234	0.00000
670.05	0.00291	0.00176	0.00357	0.00139	0.00048	0.00264	0.00000
670.38	0.00291	0.00202	0.00311	0.00196	0.00062	0.00307	0.00000
670.71	0.00336	0.00240	0.00381	0.00214	0.00057	0.00285	0.00000
671.03	0.00461	0.00302	0.00406	0.00224	0.00083	0.00274	0.00000
671.36	0.00422	0.00336	0.00322	0.00243	0.00095	0.00318	0.00000
671.69	0.00409	0.00302	0.00289	0.00224	0.00102	0.00296	0.00001
672.02	0.00313	0.00202	0.00322	0.00187	0.00122	0.00274	0.00002
672.34	0.00324	0.00176	0.00300	0.00205	0.00143	0.00274	0.00002

672.67	0.00409	0.00250	0.00322	0.00284	0.00151	0.00285	0.00002
673	0.00359	0.00291	0.00289	0.00263	0.00151	0.00274	0.00006
673.33	0.00383	0.00324	0.00334	0.00363	0.00192	0.00274	0.00002
673.65	0.00371	0.00348	0.00322	0.00363	0.00201	0.00234	0.00001
673.98	0.00409	0.00270	0.00311	0.00273	0.00167	0.00206	0.00000
674.31	0.00422	0.00230	0.00278	0.00295	0.00175	0.00234	0.00000
674.63	0.00517	0.00176	0.00200	0.00340	0.00167	0.00264	0.00000
674.96	0.00592	0.00176	0.00219	0.00233	0.00167	0.00244	0.00001
675.29	0.00809	0.00185	0.00238	0.00196	0.00159	0.00307	0.00006
675.61	0.00756	0.00160	0.00238	0.00214	0.00122	0.00318	0.00008
675.94	0.00845	0.00160	0.00248	0.00196	0.00129	0.00377	0.00014
676.27	0.00688	0.00096	0.00191	0.00170	0.00159	0.00352	0.00010
676.6	0.00773	0.00057	0.00219	0.00170	0.00122	0.00307	0.00014
676.92	0.00979	0.00053	0.00200	0.00132	0.00136	0.00307	0.00020
677.25	0.01080	0.00022	0.00209	0.00139	0.00136	0.00352	0.00026
677.58	0.01143	0.00040	0.00238	0.00154	0.00175	0.00377	0.00032
677.9	0.01298	0.00062	0.00219	0.00124	0.00210	0.00402	0.00029
678.23	0.01101	0.00122	0.00238	0.00098	0.00167	0.00341	0.00023
678.55	0.01080	0.00176	0.00278	0.00132	0.00175	0.00364	0.00036
678.88	0.00901	0.00176	0.00258	0.00170	0.00175	0.00352	0.00032
679.21	0.00959	0.00152	0.00268	0.00196	0.00201	0.00389	0.00040
679.53	0.01039	0.00185	0.00258	0.00224	0.00220	0.00352	0.00036
679.86	0.01143	0.00168	0.00268	0.00214	0.00192	0.00389	0.00048
680.19	0.01275	0.00144	0.00248	0.00179	0.00167	0.00440	0.00036
680.51	0.01275	0.00144	0.00228	0.00205	0.00129	0.00440	0.00048
680.84	0.01059	0.00129	0.00209	0.00196	0.00122	0.00402	0.00032
681.16	0.00809	0.00129	0.00158	0.00196	0.00136	0.00389	0.00029
681.49	0.00623	0.00067	0.00191	0.00196	0.00122	0.00341	0.00036
681.82	0.00655	0.00053	0.00191	0.00196	0.00129	0.00377	0.00036
682.14	0.00688	0.00032	0.00209	0.00187	0.00102	0.00341	0.00020
682.47	0.00607	0.00044	0.00200	0.00196	0.00089	0.00341	0.00017
682.79	0.00475	0.00090	0.00183	0.00170	0.00095	0.00329	0.00014
683.12	0.00475	0.00096	0.00166	0.00162	0.00102	0.00364	0.00020
683.45	0.00503	0.00096	0.00209	0.00170	0.00108	0.00364	0.00023
683.77	0.00435	0.00160	0.00248	0.00187	0.00151	0.00341	0.00032
684.1	0.00249	0.00152	0.00289	0.00187	0.00167	0.00389	0.00020
684.42	0.00270	0.00168	0.00278	0.00132	0.00159	0.00377	0.00017
684.75	0.00324	0.00185	0.00322	0.00170	0.00143	0.00402	0.00023
685.07	0.00422	0.00221	0.00258	0.00154	0.00159	0.00427	0.00026

685.4	0.00347	0.00185	0.00248	0.00124	0.00175	0.00402	0.00023
685.72	0.00448	0.00240	0.00200	0.00162	0.00167	0.00414	0.00032
686.05	0.00422	0.00168	0.00219	0.00187	0.00175	0.00377	0.00036
686.37	0.00422	0.00122	0.00219	0.00224	0.00175	0.00352	0.00029
686.7	0.00347	0.00102	0.00258	0.00243	0.00151	0.00285	0.00020
687.02	0.00259	0.00078	0.00219	0.00243	0.00151	0.00234	0.00014
687.35	0.00239	0.00096	0.00191	0.00243	0.00151	0.00234	0.00010
687.67	0.00270	0.00102	0.00158	0.00214	0.00129	0.00206	0.00008
688	0.00239	0.00129	0.00143	0.00263	0.00143	0.00188	0.00012
688.32	0.00211	0.00096	0.00143	0.00224	0.00136	0.00163	0.00008
688.65	0.00129	0.00067	0.00135	0.00224	0.00115	0.00171	0.00005
688.97	0.00115	0.00073	0.00121	0.00263	0.00095	0.00179	0.00004
689.3	0.00019	0.00048	0.00150	0.00214	0.00072	0.00179	0.00004
689.62	0.00029	0.00067	0.00183	0.00179	0.00078	0.00147	0.00001
689.95	0.00025	0.00073	0.00158	0.00154	0.00078	0.00147	0.00003
690.27	0.00006	0.00057	0.00135	0.00162	0.00062	0.00163	0.00004
690.6	0.00014	0.00122	0.00121	0.00147	0.00057	0.00179	0.00003
690.92	0.00012	0.00084	0.00107	0.00124	0.00039	0.00163	0.00002
691.25	0.00008	0.00062	0.00095	0.00111	0.00048	0.00132	0.00003
691.57	0.00019	0.00053	0.00077	0.00098	0.00048	0.00155	0.00004
691.89	0.00040	0.00073	0.00072	0.00074	0.00052	0.00140	0.00005
692.22	0.00072	0.00084	0.00083	0.00080	0.00067	0.00118	0.00005
692.54	0.00108	0.00053	0.00089	0.00059	0.00062	0.00118	0.00005
692.87	0.00211	0.00040	0.00089	0.00074	0.00078	0.00118	0.00003
693.19	0.00184	0.00044	0.00072	0.00069	0.00083	0.00125	0.00008
693.52	0.00202	0.00025	0.00101	0.00059	0.00078	0.00105	0.00005
693.84	0.00176	0.00029	0.00101	0.00027	0.00078	0.00086	0.00004
694.16	0.00167	0.00012	0.00077	0.00030	0.00083	0.00075	0.00004
694.49	0.00270	0.00002	0.00089	0.00037	0.00102	0.00070	0.00004
694.81	0.00259	0.00005	0.00114	0.00059	0.00102	0.00075	0.00002
695.14	0.00176	0.00002	0.00150	0.00069	0.00095	0.00055	0.00000
695.46	0.00122	0.00002	0.00135	0.00104	0.00083	0.00050	0.00000
695.78	0.00078	0.00000	0.00128	0.00086	0.00062	0.00041	0.00000
696.11	0.00032	0.00004	0.00166	0.00086	0.00057	0.00038	0.00000
696.43	0.00029	0.00022	0.00150	0.00074	0.00067	0.00034	0.00000
696.75	0.00014	0.00019	0.00101	0.00074	0.00052	0.00034	0.00000
697.08	0.00002	0.00036	0.00072	0.00111	0.00057	0.00038	0.00000
697.4	0.00008	0.00053	0.00056	0.00147	0.00052	0.00038	0.00000
697.72	0.00004	0.00062	0.00077	0.00170	0.00057	0.00041	0.00000

698.05	0.00003	0.00122	0.00077	0.00179	0.00048	0.00030	0.00000
698.37	0.00003	0.00102	0.00101	0.00154	0.00044	0.00030	0.00000
698.69	0.00003	0.00152	0.00089	0.00118	0.00039	0.00027	0.00000
699.02	0.00007	0.00152	0.00121	0.00111	0.00039	0.00027	0.00000
699.34	0.00033	0.00230	0.00150	0.00111	0.00039	0.00027	0.00000
699.66	0.00015	0.00260	0.00135	0.00118	0.00044	0.00015	0.00000
699.99	0.00015	0.00160	0.00114	0.00098	0.00036	0.00011	0.00000
700.31	0.00001	0.00168	0.00158	0.00080	0.00032	0.00007	0.00001

Absorbance values of Kelly Green A_F when the least squares method was applied when varying the average scans for Phase II

λ	1m	2m	3m	4m	5m	6m	7m	8m	9m	10m
380.34	0.236	0.25	0.383	0.387	0.377	0.371	0.391	0.386	0.388	0.386
380.71	0.235	0.243	0.368	0.382	0.369	0.374	0.38	0.377	0.395	0.384
381.07	0.229	0.236	0.359	0.368	0.369	0.379	0.368	0.371	0.395	0.387
381.44	0.228	0.237	0.359	0.368	0.368	0.383	0.369	0.373	0.397	0.402
381.8	0.219	0.23	0.35	0.357	0.366	0.388	0.36	0.369	0.389	0.395
382.17	0.221	0.229	0.348	0.357	0.363	0.385	0.364	0.369	0.393	0.394
382.53	0.222	0.23	0.346	0.363	0.368	0.379	0.361	0.368	0.39	0.389
382.89	0.217	0.228	0.349	0.364	0.368	0.38	0.359	0.367	0.383	0.39
383.26	0.217	0.222	0.354	0.358	0.366	0.378	0.362	0.357	0.383	0.386
383.62	0.213	0.22	0.356	0.358	0.366	0.385	0.352	0.358	0.378	0.379
383.99	0.209	0.215	0.354	0.35	0.36	0.385	0.35	0.358	0.372	0.374
384.35	0.203	0.211	0.352	0.351	0.355	0.387	0.341	0.359	0.361	0.371
384.72	0.2	0.208	0.357	0.359	0.354	0.38	0.343	0.361	0.354	0.364
385.08	0.196	0.206	0.361	0.361	0.353	0.378	0.346	0.364	0.35	0.361
385.44	0.194	0.202	0.36	0.356	0.35	0.374	0.343	0.369	0.344	0.351
385.81	0.196	0.205	0.366	0.364	0.353	0.371	0.349	0.375	0.348	0.354
386.17	0.192	0.201	0.366	0.358	0.345	0.365	0.338	0.367	0.343	0.351
386.53	0.193	0.203	0.368	0.357	0.342	0.366	0.336	0.373	0.35	0.355
386.9	0.196	0.204	0.367	0.35	0.342	0.363	0.342	0.375	0.352	0.357
387.26	0.188	0.201	0.365	0.35	0.341	0.357	0.334	0.369	0.348	0.349
387.63	0.187	0.198	0.362	0.349	0.346	0.355	0.335	0.371	0.352	0.348
387.99	0.188	0.195	0.357	0.351	0.344	0.346	0.33	0.364	0.349	0.341
388.35	0.188	0.195	0.355	0.355	0.351	0.348	0.336	0.365	0.356	0.34
388.72	0.186	0.197	0.353	0.349	0.351	0.351	0.337	0.362	0.357	0.342

389.08	0.187	0.192	0.347	0.346	0.353	0.342	0.329	0.355	0.355	0.342
389.44	0.184	0.188	0.346	0.351	0.351	0.339	0.325	0.349	0.355	0.341
389.81	0.175	0.181	0.337	0.345	0.349	0.335	0.317	0.346	0.349	0.337
390.17	0.173	0.177	0.331	0.343	0.349	0.334	0.317	0.343	0.345	0.331
390.53	0.167	0.171	0.327	0.336	0.343	0.328	0.317	0.33	0.334	0.324
390.9	0.169	0.172	0.329	0.344	0.342	0.334	0.317	0.334	0.336	0.321
391.26	0.17	0.171	0.327	0.341	0.338	0.338	0.316	0.342	0.338	0.325
391.62	0.167	0.167	0.324	0.335	0.334	0.335	0.317	0.337	0.337	0.323
391.99	0.167	0.167	0.324	0.338	0.338	0.337	0.321	0.339	0.345	0.327
392.35	0.166	0.167	0.327	0.333	0.336	0.338	0.32	0.341	0.34	0.333
392.71	0.164	0.164	0.328	0.325	0.335	0.333	0.317	0.341	0.338	0.33
393.08	0.163	0.167	0.329	0.322	0.333	0.335	0.318	0.343	0.338	0.328
393.44	0.163	0.167	0.329	0.315	0.333	0.333	0.317	0.342	0.337	0.327
393.8	0.165	0.169	0.332	0.316	0.332	0.329	0.316	0.337	0.34	0.327
394.17	0.165	0.171	0.335	0.316	0.334	0.331	0.318	0.34	0.341	0.331
394.53	0.169	0.171	0.337	0.321	0.339	0.333	0.315	0.345	0.344	0.337
394.89	0.169	0.169	0.334	0.318	0.34	0.329	0.317	0.339	0.343	0.338
395.25	0.172	0.168	0.334	0.319	0.342	0.328	0.318	0.338	0.344	0.339
395.62	0.174	0.171	0.336	0.322	0.344	0.329	0.315	0.34	0.35	0.345
395.98	0.173	0.172	0.336	0.32	0.339	0.329	0.312	0.336	0.346	0.345
396.34	0.172	0.172	0.339	0.32	0.339	0.328	0.315	0.334	0.347	0.34
396.71	0.175	0.172	0.333	0.322	0.338	0.329	0.314	0.329	0.346	0.338
397.07	0.174	0.171	0.336	0.328	0.341	0.33	0.319	0.333	0.348	0.34
397.43	0.17	0.168	0.335	0.329	0.337	0.331	0.319	0.329	0.347	0.337
397.79	0.17	0.168	0.335	0.328	0.34	0.333	0.326	0.332	0.344	0.337
398.16	0.17	0.169	0.339	0.331	0.34	0.335	0.327	0.335	0.345	0.338
398.52	0.165	0.17	0.34	0.331	0.34	0.336	0.328	0.336	0.344	0.334
398.88	0.161	0.171	0.339	0.33	0.338	0.337	0.329	0.339	0.344	0.332
399.24	0.161	0.173	0.337	0.331	0.338	0.338	0.329	0.336	0.339	0.33
399.61	0.158	0.171	0.335	0.329	0.333	0.337	0.33	0.333	0.33	0.327
399.97	0.16	0.173	0.336	0.332	0.337	0.337	0.333	0.339	0.33	0.328
400.33	0.159	0.17	0.329	0.334	0.334	0.334	0.329	0.334	0.33	0.327
400.69	0.156	0.169	0.329	0.337	0.333	0.333	0.327	0.338	0.325	0.328
401.06	0.158	0.17	0.329	0.334	0.332	0.334	0.327	0.337	0.324	0.329
401.42	0.161	0.175	0.332	0.338	0.339	0.336	0.336	0.342	0.326	0.339
401.78	0.162	0.174	0.33	0.337	0.335	0.338	0.329	0.342	0.331	0.34
402.14	0.162	0.174	0.326	0.337	0.333	0.335	0.328	0.341	0.331	0.34
402.5	0.163	0.172	0.325	0.335	0.333	0.338	0.332	0.345	0.334	0.342
402.87	0.166	0.171	0.327	0.337	0.335	0.338	0.331	0.345	0.334	0.344

403.23	0.164	0.172	0.329	0.338	0.337	0.336	0.333	0.347	0.335	0.344
403.59	0.167	0.171	0.332	0.344	0.343	0.336	0.335	0.351	0.337	0.345
403.95	0.166	0.169	0.335	0.341	0.342	0.337	0.337	0.35	0.336	0.347
404.31	0.165	0.168	0.333	0.334	0.339	0.337	0.333	0.35	0.331	0.343
404.68	0.168	0.168	0.338	0.338	0.342	0.339	0.342	0.355	0.338	0.345
405.04	0.167	0.168	0.336	0.338	0.34	0.339	0.343	0.353	0.339	0.341
405.4	0.168	0.165	0.333	0.334	0.336	0.335	0.336	0.349	0.337	0.333
405.76	0.168	0.164	0.338	0.338	0.34	0.336	0.343	0.35	0.335	0.336
406.12	0.166	0.163	0.337	0.333	0.339	0.336	0.343	0.347	0.332	0.333
406.49	0.165	0.163	0.337	0.331	0.337	0.334	0.336	0.339	0.33	0.331
406.85	0.161	0.164	0.335	0.333	0.337	0.333	0.335	0.334	0.328	0.331
407.21	0.163	0.162	0.335	0.332	0.336	0.333	0.335	0.333	0.331	0.331
407.57	0.16	0.161	0.331	0.328	0.33	0.333	0.331	0.327	0.33	0.327
407.93	0.159	0.162	0.327	0.331	0.329	0.333	0.334	0.327	0.33	0.326
408.29	0.16	0.164	0.335	0.336	0.336	0.336	0.338	0.332	0.333	0.328
408.65	0.16	0.163	0.336	0.331	0.338	0.339	0.335	0.334	0.332	0.33
409.02	0.164	0.164	0.339	0.331	0.343	0.342	0.339	0.337	0.334	0.332
409.38	0.163	0.167	0.341	0.333	0.343	0.342	0.342	0.338	0.335	0.336
409.74	0.162	0.17	0.339	0.335	0.34	0.34	0.34	0.341	0.338	0.334
410.1	0.167	0.171	0.341	0.342	0.344	0.346	0.342	0.346	0.339	0.338
410.46	0.169	0.174	0.345	0.346	0.346	0.351	0.349	0.351	0.342	0.344
410.82	0.172	0.175	0.349	0.345	0.351	0.353	0.352	0.357	0.345	0.347
411.18	0.172	0.176	0.353	0.343	0.349	0.353	0.354	0.359	0.345	0.348
411.54	0.174	0.175	0.357	0.346	0.354	0.352	0.356	0.362	0.347	0.352
411.91	0.173	0.176	0.357	0.344	0.354	0.353	0.353	0.36	0.35	0.351
412.27	0.174	0.177	0.356	0.344	0.35	0.351	0.355	0.356	0.352	0.356
412.63	0.174	0.18	0.355	0.347	0.349	0.348	0.354	0.353	0.351	0.357
412.99	0.169	0.177	0.35	0.35	0.342	0.344	0.349	0.347	0.348	0.351
413.35	0.17	0.175	0.351	0.348	0.342	0.347	0.346	0.347	0.348	0.35
413.71	0.17	0.174	0.35	0.348	0.341	0.35	0.343	0.346	0.346	0.352
414.07	0.167	0.174	0.35	0.345	0.34	0.35	0.344	0.347	0.347	0.351
414.43	0.166	0.174	0.348	0.344	0.339	0.347	0.341	0.347	0.347	0.351
414.79	0.165	0.173	0.347	0.345	0.336	0.346	0.34	0.346	0.345	0.351
415.15	0.165	0.172	0.346	0.35	0.339	0.346	0.34	0.346	0.346	0.351
415.51	0.165	0.174	0.347	0.349	0.336	0.345	0.341	0.347	0.345	0.352
415.88	0.167	0.176	0.349	0.35	0.338	0.345	0.343	0.351	0.346	0.353
416.24	0.166	0.177	0.348	0.351	0.341	0.348	0.344	0.353	0.349	0.353
416.6	0.166	0.176	0.347	0.35	0.339	0.348	0.342	0.351	0.348	0.351
416.96	0.169	0.179	0.35	0.349	0.341	0.35	0.344	0.356	0.35	0.353

417.32	0.169	0.179	0.348	0.347	0.342	0.349	0.344	0.355	0.347	0.352
417.68	0.17	0.179	0.35	0.344	0.342	0.346	0.347	0.355	0.348	0.351
418.04	0.171	0.179	0.347	0.347	0.342	0.344	0.346	0.354	0.349	0.349
418.4	0.171	0.179	0.349	0.345	0.342	0.343	0.345	0.352	0.349	0.349
418.76	0.17	0.179	0.346	0.344	0.342	0.343	0.347	0.351	0.349	0.347
419.12	0.17	0.179	0.345	0.344	0.342	0.344	0.347	0.35	0.348	0.348
419.48	0.17	0.179	0.346	0.344	0.344	0.347	0.346	0.35	0.349	0.345
419.84	0.171	0.177	0.344	0.345	0.343	0.347	0.345	0.352	0.348	0.347
420.2	0.172	0.176	0.344	0.343	0.344	0.347	0.343	0.352	0.345	0.344
420.56	0.174	0.176	0.347	0.345	0.349	0.349	0.347	0.357	0.347	0.349
420.92	0.172	0.175	0.346	0.345	0.351	0.35	0.345	0.354	0.348	0.35
421.28	0.172	0.175	0.347	0.346	0.35	0.35	0.347	0.353	0.35	0.352
421.64	0.173	0.174	0.35	0.35	0.353	0.354	0.346	0.353	0.35	0.353
422	0.173	0.173	0.351	0.348	0.351	0.354	0.347	0.349	0.349	0.354
422.36	0.173	0.172	0.349	0.351	0.353	0.354	0.347	0.351	0.348	0.352
422.72	0.173	0.174	0.351	0.35	0.353	0.353	0.346	0.351	0.35	0.351
423.08	0.171	0.173	0.35	0.349	0.352	0.352	0.345	0.35	0.35	0.352
423.44	0.173	0.175	0.351	0.348	0.354	0.353	0.347	0.353	0.35	0.356
423.8	0.171	0.175	0.353	0.348	0.352	0.353	0.349	0.35	0.349	0.354
424.16	0.171	0.176	0.352	0.351	0.351	0.352	0.347	0.351	0.349	0.355
424.52	0.169	0.174	0.349	0.35	0.347	0.351	0.345	0.348	0.348	0.35
424.88	0.17	0.174	0.35	0.351	0.347	0.352	0.344	0.348	0.346	0.35
425.24	0.171	0.177	0.35	0.356	0.352	0.352	0.346	0.352	0.347	0.352
425.6	0.171	0.178	0.349	0.355	0.352	0.35	0.346	0.352	0.347	0.353
425.96	0.171	0.179	0.349	0.357	0.353	0.349	0.348	0.353	0.347	0.354
426.32	0.172	0.179	0.352	0.356	0.351	0.349	0.348	0.356	0.35	0.355
426.68	0.174	0.18	0.353	0.358	0.352	0.35	0.35	0.356	0.349	0.356
427.04	0.176	0.18	0.354	0.36	0.353	0.351	0.35	0.357	0.35	0.357
427.4	0.174	0.178	0.351	0.362	0.351	0.349	0.348	0.356	0.353	0.356
427.76	0.174	0.178	0.351	0.359	0.352	0.347	0.346	0.356	0.353	0.357
428.12	0.174	0.178	0.35	0.358	0.352	0.347	0.346	0.356	0.353	0.357
428.47	0.175	0.18	0.351	0.358	0.356	0.348	0.348	0.357	0.355	0.359
428.83	0.175	0.178	0.35	0.357	0.353	0.346	0.347	0.357	0.356	0.359
429.19	0.176	0.178	0.35	0.354	0.351	0.347	0.346	0.357	0.355	0.359
429.55	0.175	0.178	0.349	0.355	0.351	0.348	0.346	0.359	0.355	0.357
429.91	0.175	0.177	0.349	0.354	0.352	0.349	0.346	0.359	0.356	0.356
430.27	0.175	0.178	0.347	0.355	0.353	0.35	0.346	0.359	0.355	0.355
430.63	0.174	0.174	0.346	0.353	0.353	0.35	0.345	0.356	0.352	0.355
430.99	0.172	0.175	0.347	0.352	0.351	0.347	0.346	0.356	0.351	0.352

431.35	0.171	0.176	0.348	0.35	0.351	0.349	0.345	0.354	0.348	0.351
431.71	0.172	0.176	0.347	0.353	0.354	0.351	0.345	0.354	0.351	0.354
432.07	0.172	0.173	0.347	0.354	0.353	0.351	0.346	0.354	0.352	0.353
432.42	0.17	0.171	0.345	0.351	0.35	0.349	0.345	0.352	0.348	0.354
432.78	0.168	0.17	0.345	0.351	0.35	0.347	0.346	0.349	0.346	0.355
433.14	0.165	0.165	0.342	0.348	0.347	0.345	0.345	0.348	0.345	0.351
433.5	0.166	0.167	0.343	0.347	0.346	0.345	0.347	0.349	0.345	0.352
433.86	0.164	0.165	0.343	0.345	0.346	0.346	0.346	0.35	0.345	0.35
434.22	0.163	0.164	0.345	0.346	0.346	0.347	0.345	0.349	0.343	0.35
434.58	0.162	0.165	0.346	0.349	0.345	0.348	0.344	0.348	0.345	0.351
434.94	0.163	0.164	0.345	0.346	0.344	0.349	0.343	0.348	0.345	0.35
435.29	0.161	0.164	0.343	0.345	0.344	0.346	0.342	0.346	0.345	0.349
435.65	0.159	0.162	0.343	0.343	0.343	0.344	0.34	0.344	0.341	0.345
436.01	0.16	0.163	0.346	0.343	0.343	0.346	0.341	0.344	0.341	0.346
436.37	0.16	0.163	0.345	0.344	0.342	0.344	0.342	0.341	0.341	0.344
436.73	0.16	0.164	0.346	0.346	0.345	0.348	0.343	0.346	0.342	0.345
437.09	0.16	0.165	0.347	0.347	0.345	0.347	0.343	0.344	0.343	0.346
437.44	0.157	0.161	0.344	0.343	0.346	0.342	0.339	0.341	0.339	0.345
437.8	0.157	0.16	0.344	0.346	0.345	0.343	0.339	0.34	0.339	0.347
438.16	0.155	0.16	0.343	0.346	0.345	0.342	0.34	0.341	0.34	0.348
438.52	0.155	0.158	0.339	0.343	0.344	0.34	0.342	0.342	0.339	0.345
438.88	0.155	0.157	0.339	0.345	0.344	0.343	0.342	0.342	0.339	0.346
439.24	0.154	0.155	0.34	0.344	0.344	0.343	0.342	0.343	0.34	0.345
439.59	0.154	0.154	0.34	0.344	0.343	0.343	0.343	0.343	0.341	0.345
439.95	0.151	0.154	0.338	0.344	0.343	0.34	0.344	0.344	0.341	0.344
440.31	0.15	0.154	0.339	0.344	0.344	0.343	0.343	0.346	0.341	0.344
440.67	0.149	0.151	0.337	0.341	0.343	0.341	0.342	0.342	0.341	0.344
441.03	0.148	0.151	0.336	0.342	0.344	0.34	0.342	0.343	0.341	0.344
441.38	0.147	0.151	0.336	0.344	0.344	0.339	0.343	0.342	0.341	0.342
441.74	0.146	0.15	0.334	0.339	0.341	0.335	0.342	0.341	0.34	0.341
442.1	0.147	0.15	0.334	0.338	0.342	0.336	0.342	0.341	0.34	0.34
442.46	0.147	0.15	0.337	0.338	0.342	0.335	0.341	0.338	0.338	0.341
442.81	0.146	0.149	0.336	0.339	0.343	0.332	0.341	0.338	0.339	0.341
443.17	0.148	0.148	0.337	0.339	0.342	0.332	0.342	0.338	0.338	0.341
443.53	0.147	0.146	0.335	0.338	0.339	0.332	0.34	0.336	0.335	0.34
443.89	0.144	0.143	0.336	0.335	0.336	0.33	0.337	0.334	0.334	0.339
444.24	0.142	0.142	0.334	0.333	0.333	0.327	0.337	0.332	0.332	0.337
444.6	0.141	0.142	0.334	0.334	0.331	0.327	0.336	0.331	0.33	0.336
444.96	0.139	0.141	0.336	0.335	0.33	0.328	0.337	0.332	0.331	0.336

445.32	0.139	0.141	0.335	0.332	0.328	0.33	0.337	0.331	0.33	0.335
445.67	0.138	0.14	0.337	0.334	0.33	0.333	0.335	0.331	0.333	0.336
446.03	0.137	0.138	0.337	0.334	0.329	0.332	0.337	0.331	0.332	0.336
446.39	0.137	0.137	0.335	0.335	0.328	0.331	0.336	0.332	0.333	0.335
446.75	0.135	0.136	0.337	0.333	0.328	0.332	0.333	0.332	0.332	0.333
447.1	0.132	0.136	0.335	0.332	0.326	0.331	0.329	0.329	0.33	0.331
447.46	0.131	0.136	0.336	0.331	0.328	0.331	0.329	0.331	0.333	0.332
447.82	0.131	0.134	0.334	0.331	0.329	0.332	0.329	0.329	0.332	0.331
448.18	0.131	0.133	0.334	0.332	0.33	0.332	0.327	0.331	0.333	0.331
448.53	0.129	0.131	0.335	0.331	0.33	0.331	0.326	0.331	0.333	0.331
448.89	0.127	0.13	0.331	0.329	0.329	0.329	0.324	0.327	0.331	0.328
449.25	0.127	0.128	0.331	0.329	0.328	0.33	0.323	0.326	0.332	0.328
449.6	0.124	0.126	0.329	0.326	0.325	0.328	0.324	0.324	0.327	0.326
449.96	0.122	0.125	0.326	0.323	0.323	0.325	0.321	0.32	0.326	0.322
450.32	0.12	0.123	0.326	0.321	0.324	0.324	0.322	0.319	0.325	0.322
450.67	0.119	0.123	0.323	0.321	0.323	0.323	0.323	0.318	0.324	0.321
451.03	0.118	0.122	0.322	0.32	0.322	0.322	0.325	0.317	0.326	0.323
451.39	0.117	0.12	0.32	0.318	0.32	0.321	0.325	0.316	0.324	0.321
451.74	0.117	0.119	0.319	0.317	0.319	0.321	0.324	0.317	0.322	0.32
452.1	0.114	0.117	0.317	0.315	0.318	0.32	0.323	0.315	0.321	0.319
452.46	0.114	0.117	0.315	0.312	0.316	0.319	0.324	0.315	0.32	0.317
452.81	0.113	0.115	0.316	0.312	0.314	0.318	0.324	0.316	0.319	0.318
453.17	0.11	0.114	0.317	0.313	0.313	0.318	0.323	0.318	0.317	0.318
453.53	0.11	0.112	0.315	0.312	0.313	0.316	0.32	0.317	0.316	0.316
453.88	0.107	0.11	0.314	0.31	0.311	0.314	0.317	0.316	0.315	0.316
454.24	0.106	0.11	0.313	0.31	0.31	0.316	0.316	0.317	0.316	0.317
454.6	0.105	0.107	0.312	0.309	0.309	0.315	0.316	0.316	0.315	0.316
454.95	0.103	0.106	0.312	0.308	0.309	0.313	0.314	0.317	0.313	0.315
455.31	0.101	0.105	0.309	0.308	0.308	0.313	0.312	0.317	0.311	0.313
455.66	0.1	0.105	0.31	0.307	0.306	0.311	0.311	0.315	0.31	0.312
456.02	0.099	0.104	0.308	0.307	0.305	0.31	0.311	0.313	0.308	0.31
456.38	0.1	0.102	0.307	0.307	0.305	0.307	0.309	0.311	0.307	0.311
456.73	0.099	0.101	0.306	0.307	0.305	0.308	0.309	0.309	0.307	0.309
457.09	0.098	0.098	0.304	0.305	0.303	0.306	0.307	0.304	0.307	0.308
457.45	0.097	0.097	0.304	0.304	0.302	0.306	0.307	0.303	0.306	0.308
457.8	0.095	0.096	0.303	0.305	0.302	0.306	0.307	0.302	0.305	0.306
458.16	0.094	0.094	0.302	0.305	0.301	0.304	0.304	0.301	0.303	0.305
458.51	0.093	0.093	0.302	0.304	0.3	0.304	0.303	0.3	0.301	0.305
458.87	0.093	0.091	0.301	0.303	0.298	0.303	0.3	0.299	0.3	0.302

459.23	0.09	0.089	0.3	0.303	0.297	0.3	0.298	0.296	0.298	0.301
459.58	0.086	0.087	0.298	0.302	0.296	0.299	0.296	0.295	0.298	0.299
459.94	0.084	0.085	0.297	0.3	0.295	0.298	0.293	0.293	0.297	0.298
460.29	0.081	0.083	0.296	0.296	0.293	0.297	0.291	0.291	0.294	0.295
460.65	0.079	0.081	0.294	0.295	0.292	0.293	0.288	0.291	0.293	0.294
461	0.078	0.08	0.293	0.294	0.292	0.291	0.289	0.292	0.293	0.293
461.36	0.077	0.079	0.292	0.293	0.292	0.29	0.289	0.292	0.294	0.294
461.71	0.077	0.078	0.292	0.293	0.291	0.291	0.289	0.292	0.294	0.294
462.07	0.073	0.076	0.29	0.29	0.289	0.29	0.288	0.29	0.293	0.293
462.43	0.071	0.074	0.288	0.289	0.288	0.287	0.288	0.289	0.291	0.29
462.78	0.07	0.072	0.286	0.289	0.288	0.286	0.288	0.288	0.29	0.29
463.14	0.069	0.07	0.285	0.287	0.287	0.286	0.289	0.29	0.288	0.29
463.49	0.069	0.069	0.285	0.286	0.287	0.285	0.288	0.289	0.286	0.29
463.85	0.069	0.068	0.285	0.286	0.286	0.284	0.287	0.288	0.286	0.289
464.2	0.067	0.069	0.284	0.287	0.287	0.284	0.288	0.288	0.286	0.29
464.56	0.066	0.067	0.284	0.286	0.286	0.283	0.288	0.286	0.284	0.289
464.91	0.064	0.065	0.282	0.283	0.286	0.282	0.286	0.284	0.282	0.288
465.27	0.062	0.064	0.28	0.282	0.285	0.281	0.285	0.283	0.28	0.287
465.62	0.06	0.063	0.279	0.28	0.284	0.28	0.282	0.282	0.279	0.284
465.98	0.059	0.061	0.278	0.279	0.283	0.278	0.281	0.281	0.277	0.282
466.33	0.057	0.059	0.275	0.279	0.281	0.276	0.278	0.28	0.277	0.28
466.69	0.055	0.057	0.274	0.278	0.28	0.275	0.278	0.278	0.276	0.278
467.04	0.055	0.056	0.274	0.277	0.28	0.274	0.276	0.276	0.277	0.277
467.4	0.052	0.053	0.274	0.275	0.278	0.275	0.276	0.275	0.276	0.277
467.75	0.051	0.052	0.273	0.275	0.278	0.275	0.275	0.275	0.275	0.276
468.11	0.049	0.049	0.271	0.273	0.275	0.273	0.274	0.274	0.273	0.273
468.46	0.048	0.048	0.269	0.272	0.273	0.272	0.272	0.272	0.272	0.272
468.82	0.046	0.046	0.269	0.271	0.272	0.271	0.271	0.271	0.271	0.27
469.17	0.044	0.044	0.267	0.269	0.27	0.27	0.27	0.27	0.271	0.268
469.53	0.042	0.041	0.267	0.268	0.268	0.268	0.269	0.27	0.269	0.266
469.88	0.041	0.039	0.267	0.267	0.266	0.267	0.269	0.268	0.268	0.266
470.24	0.038	0.037	0.266	0.265	0.266	0.266	0.268	0.267	0.266	0.267
470.59	0.036	0.036	0.265	0.262	0.263	0.265	0.267	0.265	0.264	0.265
470.94	0.034	0.035	0.263	0.262	0.261	0.264	0.266	0.263	0.262	0.264
471.3	0.032	0.033	0.262	0.26	0.26	0.261	0.264	0.262	0.261	0.261
471.65	0.029	0.031	0.259	0.258	0.258	0.259	0.262	0.26	0.259	0.26
472.01	0.027	0.029	0.258	0.257	0.257	0.257	0.259	0.259	0.257	0.259
472.36	0.025	0.028	0.257	0.255	0.255	0.257	0.258	0.258	0.256	0.258
472.72	0.023	0.027	0.256	0.254	0.253	0.256	0.257	0.257	0.255	0.258

473.07	0.02	0.025	0.255	0.253	0.252	0.254	0.255	0.255	0.253	0.257
473.43	0.018	0.023	0.253	0.252	0.25	0.253	0.253	0.252	0.252	0.256
473.78	0.016	0.021	0.251	0.251	0.249	0.253	0.251	0.25	0.251	0.255
474.13	0.015	0.019	0.25	0.249	0.248	0.252	0.25	0.249	0.249	0.252
474.49	0.014	0.017	0.249	0.249	0.247	0.251	0.248	0.249	0.248	0.251
474.84	0.012	0.015	0.247	0.247	0.245	0.249	0.246	0.248	0.247	0.25
475.2	0.011	0.014	0.246	0.247	0.243	0.247	0.245	0.246	0.245	0.248
475.55	0.009	0.012	0.245	0.245	0.241	0.246	0.244	0.243	0.243	0.246
475.9	0.007	0.01	0.243	0.243	0.24	0.244	0.243	0.241	0.241	0.245
476.26	0.006	0.007	0.242	0.241	0.239	0.243	0.241	0.24	0.24	0.243
476.61	0.004	0.005	0.24	0.24	0.238	0.241	0.238	0.239	0.238	0.24
476.96	0.003	0.004	0.238	0.238	0.237	0.241	0.237	0.238	0.237	0.239
477.32	0.003	0.003	0.236	0.237	0.236	0.239	0.236	0.238	0.235	0.236
477.67	0	0.001	0.235	0.234	0.234	0.237	0.235	0.236	0.234	0.235
478.03	-0.001	-0.001	0.234	0.233	0.233	0.236	0.233	0.235	0.233	0.233
478.38	-0.003	-0.002	0.232	0.231	0.232	0.233	0.232	0.233	0.231	0.231
478.73	-0.004	-0.004	0.23	0.23	0.232	0.232	0.23	0.232	0.23	0.23
479.09	-0.007	-0.006	0.228	0.228	0.231	0.232	0.229	0.231	0.228	0.229
479.44	-0.008	-0.008	0.227	0.228	0.23	0.231	0.227	0.231	0.228	0.227
479.79	-0.008	-0.009	0.227	0.227	0.229	0.23	0.226	0.231	0.228	0.227
480.15	-0.011	-0.01	0.225	0.225	0.228	0.228	0.224	0.229	0.227	0.226
480.5	-0.013	-0.012	0.224	0.224	0.226	0.227	0.223	0.227	0.226	0.225
480.85	-0.015	-0.013	0.222	0.222	0.225	0.224	0.222	0.226	0.225	0.223
481.21	-0.016	-0.015	0.221	0.221	0.224	0.223	0.221	0.225	0.223	0.223
481.56	-0.018	-0.016	0.22	0.221	0.224	0.222	0.219	0.223	0.222	0.222
481.91	-0.02	-0.018	0.218	0.218	0.222	0.22	0.218	0.221	0.22	0.219
482.27	-0.022	-0.02	0.217	0.217	0.22	0.22	0.217	0.219	0.219	0.218
482.62	-0.024	-0.022	0.216	0.216	0.219	0.219	0.216	0.218	0.218	0.217
482.97	-0.025	-0.024	0.216	0.214	0.218	0.218	0.215	0.217	0.217	0.216
483.33	-0.027	-0.025	0.215	0.212	0.217	0.216	0.216	0.215	0.217	0.215
483.68	-0.028	-0.027	0.214	0.211	0.215	0.215	0.216	0.213	0.215	0.213
484.03	-0.029	-0.028	0.214	0.212	0.215	0.215	0.216	0.213	0.214	0.213
484.38	-0.031	-0.03	0.213	0.21	0.215	0.213	0.214	0.212	0.212	0.211
484.74	-0.032	-0.031	0.212	0.209	0.213	0.213	0.214	0.21	0.211	0.21
485.09	-0.032	-0.033	0.211	0.208	0.212	0.213	0.213	0.209	0.21	0.209
485.44	-0.034	-0.034	0.21	0.208	0.212	0.212	0.213	0.209	0.21	0.209
485.8	-0.034	-0.034	0.21	0.209	0.211	0.211	0.212	0.209	0.21	0.209
486.15	-0.035	-0.034	0.21	0.208	0.211	0.21	0.211	0.208	0.209	0.208
486.5	-0.036	-0.035	0.208	0.207	0.209	0.208	0.21	0.207	0.208	0.206

486.85	-0.037	-0.036	0.207	0.207	0.208	0.207	0.209	0.207	0.207	0.205
487.21	-0.038	-0.036	0.205	0.207	0.207	0.207	0.207	0.205	0.207	0.205
487.56	-0.039	-0.036	0.204	0.206	0.206	0.206	0.207	0.206	0.207	0.205
487.91	-0.04	-0.037	0.202	0.204	0.205	0.206	0.205	0.204	0.206	0.204
488.26	-0.041	-0.038	0.201	0.203	0.204	0.204	0.205	0.203	0.206	0.203
488.62	-0.043	-0.04	0.201	0.203	0.203	0.203	0.203	0.203	0.206	0.202
488.97	-0.043	-0.04	0.201	0.202	0.203	0.202	0.203	0.203	0.205	0.201
489.32	-0.044	-0.041	0.2	0.2	0.202	0.201	0.202	0.202	0.204	0.2
489.67	-0.046	-0.043	0.198	0.199	0.201	0.2	0.2	0.201	0.202	0.199
490.02	-0.046	-0.044	0.198	0.198	0.2	0.199	0.199	0.2	0.203	0.199
490.38	-0.047	-0.045	0.197	0.197	0.199	0.198	0.2	0.198	0.201	0.199
490.73	-0.047	-0.045	0.196	0.197	0.198	0.197	0.198	0.197	0.202	0.199
491.08	-0.048	-0.046	0.196	0.196	0.197	0.196	0.197	0.197	0.2	0.197
491.43	-0.049	-0.048	0.196	0.196	0.197	0.196	0.196	0.196	0.199	0.196
491.79	-0.05	-0.048	0.195	0.195	0.196	0.195	0.195	0.196	0.199	0.195
492.14	-0.051	-0.05	0.194	0.193	0.194	0.194	0.194	0.195	0.197	0.194
492.49	-0.052	-0.051	0.193	0.192	0.193	0.193	0.194	0.194	0.196	0.193
492.84	-0.053	-0.052	0.192	0.192	0.192	0.191	0.193	0.193	0.195	0.193
493.19	-0.054	-0.053	0.192	0.191	0.19	0.19	0.192	0.192	0.193	0.192
493.54	-0.055	-0.054	0.191	0.191	0.19	0.19	0.191	0.192	0.193	0.191
493.9	-0.057	-0.055	0.189	0.189	0.188	0.189	0.19	0.191	0.191	0.19
494.25	-0.058	-0.056	0.188	0.188	0.189	0.188	0.189	0.191	0.189	0.189
494.6	-0.059	-0.057	0.187	0.188	0.188	0.188	0.189	0.19	0.188	0.189
494.95	-0.059	-0.057	0.186	0.187	0.187	0.187	0.189	0.189	0.186	0.188
495.3	-0.061	-0.058	0.185	0.186	0.185	0.185	0.187	0.188	0.186	0.187
495.65	-0.061	-0.059	0.184	0.185	0.185	0.185	0.188	0.188	0.185	0.186
496.01	-0.062	-0.059	0.184	0.185	0.185	0.185	0.187	0.187	0.185	0.186
496.36	-0.062	-0.059	0.184	0.184	0.185	0.185	0.186	0.186	0.185	0.184
496.71	-0.063	-0.06	0.182	0.183	0.184	0.185	0.184	0.185	0.184	0.184
497.06	-0.063	-0.06	0.182	0.183	0.183	0.185	0.184	0.184	0.184	0.183
497.41	-0.064	-0.061	0.181	0.182	0.182	0.185	0.183	0.183	0.183	0.183
497.76	-0.064	-0.062	0.182	0.181	0.182	0.184	0.182	0.182	0.183	0.182
498.11	-0.064	-0.062	0.182	0.182	0.181	0.184	0.182	0.182	0.183	0.182
498.47	-0.065	-0.063	0.182	0.181	0.18	0.182	0.181	0.182	0.182	0.181
498.82	-0.065	-0.063	0.182	0.181	0.181	0.182	0.18	0.181	0.183	0.181
499.17	-0.066	-0.064	0.182	0.181	0.181	0.182	0.18	0.181	0.182	0.181
499.52	-0.066	-0.064	0.18	0.181	0.181	0.18	0.179	0.18	0.181	0.18
499.87	-0.067	-0.064	0.18	0.18	0.179	0.179	0.179	0.179	0.179	0.18
500.22	-0.067	-0.065	0.179	0.18	0.179	0.178	0.178	0.179	0.179	0.18

500.57	-0.067	-0.065	0.179	0.179	0.179	0.178	0.178	0.179	0.179	0.18
500.92	-0.067	-0.065	0.178	0.179	0.179	0.176	0.178	0.178	0.178	0.178
501.27	-0.068	-0.065	0.178	0.179	0.18	0.176	0.177	0.178	0.178	0.179
501.62	-0.068	-0.065	0.177	0.178	0.179	0.176	0.177	0.178	0.177	0.177
501.97	-0.069	-0.066	0.177	0.178	0.179	0.175	0.176	0.178	0.177	0.176
502.33	-0.069	-0.066	0.176	0.177	0.178	0.175	0.176	0.177	0.177	0.176
502.68	-0.069	-0.067	0.175	0.176	0.177	0.175	0.176	0.178	0.177	0.176
503.03	-0.069	-0.067	0.175	0.175	0.176	0.175	0.176	0.178	0.177	0.177
503.38	-0.07	-0.068	0.175	0.174	0.175	0.175	0.176	0.178	0.177	0.177
503.73	-0.07	-0.068	0.174	0.174	0.175	0.176	0.176	0.177	0.177	0.176
504.08	-0.07	-0.069	0.173	0.173	0.174	0.175	0.176	0.176	0.176	0.176
504.43	-0.07	-0.069	0.174	0.173	0.174	0.175	0.177	0.176	0.176	0.176
504.78	-0.071	-0.069	0.173	0.172	0.173	0.175	0.176	0.176	0.177	0.176
505.13	-0.071	-0.069	0.171	0.172	0.172	0.174	0.176	0.175	0.176	0.175
505.48	-0.071	-0.069	0.171	0.172	0.172	0.174	0.177	0.175	0.177	0.176
505.83	-0.07	-0.069	0.171	0.173	0.171	0.174	0.177	0.175	0.176	0.176
506.18	-0.07	-0.069	0.171	0.172	0.171	0.174	0.177	0.174	0.175	0.176
506.53	-0.071	-0.069	0.171	0.171	0.171	0.173	0.175	0.172	0.174	0.175
506.88	-0.072	-0.071	0.171	0.17	0.171	0.173	0.174	0.171	0.173	0.172
507.23	-0.072	-0.071	0.171	0.171	0.171	0.172	0.173	0.172	0.173	0.171
507.58	-0.072	-0.071	0.171	0.172	0.171	0.172	0.172	0.172	0.174	0.172
507.93	-0.071	-0.07	0.172	0.172	0.172	0.173	0.172	0.173	0.174	0.172
508.28	-0.071	-0.07	0.171	0.172	0.171	0.173	0.172	0.173	0.174	0.171
508.63	-0.071	-0.07	0.171	0.172	0.171	0.173	0.172	0.172	0.172	0.171
508.98	-0.071	-0.069	0.172	0.172	0.172	0.174	0.172	0.173	0.173	0.171
509.33	-0.071	-0.07	0.172	0.171	0.172	0.173	0.172	0.173	0.173	0.171
509.68	-0.071	-0.07	0.171	0.17	0.172	0.172	0.17	0.172	0.172	0.17
510.03	-0.072	-0.071	0.171	0.17	0.171	0.172	0.169	0.172	0.172	0.17
510.38	-0.071	-0.071	0.17	0.17	0.171	0.172	0.17	0.172	0.173	0.171
510.73	-0.07	-0.07	0.171	0.171	0.172	0.173	0.171	0.173	0.173	0.173
511.08	-0.071	-0.07	0.17	0.171	0.172	0.174	0.171	0.172	0.172	0.173
511.43	-0.071	-0.071	0.17	0.17	0.172	0.173	0.171	0.172	0.172	0.173
511.78	-0.07	-0.071	0.17	0.17	0.172	0.173	0.172	0.172	0.173	0.174
512.13	-0.07	-0.071	0.171	0.171	0.173	0.173	0.172	0.173	0.173	0.174
512.48	-0.069	-0.07	0.172	0.171	0.174	0.173	0.173	0.174	0.174	0.175
512.83	-0.07	-0.071	0.171	0.172	0.174	0.173	0.173	0.174	0.174	0.175
513.18	-0.07	-0.071	0.171	0.172	0.173	0.173	0.173	0.174	0.174	0.175
513.53	-0.069	-0.07	0.171	0.172	0.174	0.173	0.173	0.175	0.175	0.175
513.88	-0.069	-0.07	0.171	0.173	0.175	0.173	0.173	0.175	0.176	0.175

514.22	-0.07	-0.07	0.171	0.173	0.175	0.173	0.173	0.175	0.175	0.175
514.57	-0.07	-0.07	0.171	0.173	0.174	0.172	0.173	0.175	0.175	0.175
514.92	-0.07	-0.07	0.172	0.173	0.174	0.171	0.174	0.174	0.176	0.174
515.27	-0.07	-0.07	0.172	0.173	0.175	0.171	0.174	0.175	0.175	0.175
515.62	-0.071	-0.07	0.172	0.172	0.174	0.171	0.173	0.173	0.174	0.174
515.97	-0.071	-0.07	0.171	0.171	0.174	0.17	0.172	0.173	0.174	0.174
516.32	-0.072	-0.072	0.17	0.17	0.173	0.17	0.172	0.172	0.173	0.173
516.67	-0.072	-0.072	0.17	0.17	0.173	0.172	0.172	0.171	0.172	0.173
517.02	-0.072	-0.072	0.17	0.171	0.174	0.172	0.172	0.171	0.172	0.173
517.37	-0.072	-0.072	0.17	0.171	0.175	0.173	0.172	0.172	0.172	0.173
517.72	-0.072	-0.072	0.17	0.171	0.174	0.173	0.173	0.172	0.171	0.173
518.06	-0.072	-0.072	0.171	0.171	0.173	0.173	0.173	0.172	0.171	0.173
518.41	-0.072	-0.072	0.17	0.172	0.173	0.174	0.173	0.172	0.171	0.172
518.76	-0.071	-0.071	0.171	0.172	0.173	0.175	0.173	0.173	0.172	0.173
519.11	-0.071	-0.072	0.171	0.172	0.172	0.174	0.174	0.172	0.172	0.172
519.46	-0.071	-0.071	0.172	0.173	0.172	0.174	0.174	0.173	0.172	0.172
519.81	-0.071	-0.071	0.172	0.173	0.172	0.174	0.174	0.173	0.171	0.173
520.16	-0.07	-0.07	0.173	0.174	0.172	0.175	0.175	0.174	0.172	0.174
520.5	-0.07	-0.069	0.173	0.174	0.172	0.174	0.175	0.174	0.172	0.173
520.85	-0.069	-0.069	0.174	0.174	0.172	0.174	0.176	0.175	0.173	0.174
521.2	-0.069	-0.068	0.174	0.174	0.172	0.175	0.176	0.174	0.173	0.174
521.55	-0.068	-0.067	0.174	0.176	0.172	0.175	0.177	0.175	0.174	0.175
521.9	-0.068	-0.067	0.175	0.176	0.173	0.175	0.176	0.175	0.174	0.174
522.25	-0.068	-0.066	0.175	0.175	0.172	0.176	0.176	0.175	0.174	0.175
522.59	-0.069	-0.066	0.174	0.175	0.173	0.176	0.176	0.176	0.174	0.175
522.94	-0.068	-0.066	0.174	0.175	0.174	0.177	0.176	0.176	0.174	0.176
523.29	-0.068	-0.066	0.175	0.177	0.175	0.178	0.177	0.177	0.175	0.177
523.64	-0.068	-0.065	0.175	0.177	0.175	0.179	0.177	0.177	0.176	0.177
523.99	-0.068	-0.066	0.175	0.177	0.174	0.178	0.177	0.176	0.176	0.177
524.33	-0.069	-0.066	0.175	0.177	0.174	0.178	0.177	0.177	0.177	0.178
524.68	-0.069	-0.066	0.175	0.176	0.174	0.177	0.176	0.177	0.177	0.177
525.03	-0.068	-0.066	0.176	0.177	0.175	0.178	0.177	0.178	0.178	0.178
525.38	-0.068	-0.066	0.177	0.177	0.175	0.178	0.176	0.179	0.178	0.178
525.73	-0.067	-0.065	0.177	0.178	0.177	0.178	0.177	0.18	0.18	0.179
526.07	-0.066	-0.065	0.178	0.179	0.178	0.179	0.178	0.181	0.18	0.18
526.42	-0.065	-0.064	0.179	0.18	0.179	0.179	0.178	0.18	0.18	0.18
526.77	-0.064	-0.063	0.179	0.18	0.179	0.18	0.178	0.181	0.181	0.18
527.12	-0.064	-0.063	0.179	0.18	0.178	0.18	0.179	0.18	0.182	0.179
527.46	-0.063	-0.063	0.179	0.179	0.179	0.18	0.178	0.181	0.182	0.179

527.81	-0.062	-0.062	0.18	0.18	0.18	0.181	0.179	0.182	0.182	0.179
528.16	-0.062	-0.061	0.181	0.18	0.18	0.181	0.179	0.182	0.182	0.179
528.51	-0.062	-0.062	0.18	0.18	0.181	0.182	0.179	0.181	0.182	0.179
528.85	-0.062	-0.062	0.18	0.18	0.181	0.182	0.179	0.181	0.182	0.179
529.2	-0.061	-0.061	0.181	0.18	0.182	0.183	0.18	0.181	0.183	0.18
529.55	-0.062	-0.062	0.181	0.181	0.181	0.183	0.181	0.18	0.183	0.18
529.9	-0.062	-0.062	0.181	0.18	0.181	0.182	0.181	0.179	0.183	0.18
530.24	-0.062	-0.061	0.182	0.181	0.181	0.183	0.182	0.179	0.184	0.18
530.59	-0.062	-0.061	0.181	0.18	0.182	0.183	0.183	0.18	0.183	0.18
530.94	-0.061	-0.061	0.182	0.18	0.182	0.182	0.183	0.18	0.183	0.181
531.29	-0.061	-0.06	0.182	0.181	0.183	0.183	0.183	0.18	0.184	0.182
531.63	-0.06	-0.06	0.182	0.18	0.183	0.183	0.182	0.18	0.184	0.182
531.98	-0.059	-0.059	0.183	0.181	0.183	0.183	0.184	0.181	0.184	0.183
532.33	-0.058	-0.058	0.184	0.182	0.185	0.184	0.185	0.183	0.186	0.184
532.67	-0.057	-0.057	0.184	0.182	0.184	0.183	0.186	0.183	0.186	0.184
533.02	-0.057	-0.057	0.185	0.182	0.185	0.184	0.186	0.184	0.186	0.185
533.37	-0.056	-0.056	0.185	0.183	0.186	0.184	0.186	0.185	0.186	0.185
533.71	-0.055	-0.055	0.186	0.184	0.187	0.185	0.187	0.186	0.186	0.186
534.06	-0.055	-0.054	0.186	0.184	0.187	0.186	0.187	0.187	0.186	0.185
534.41	-0.054	-0.053	0.187	0.186	0.189	0.188	0.187	0.188	0.188	0.186
534.75	-0.053	-0.052	0.189	0.188	0.189	0.189	0.187	0.189	0.189	0.188
535.1	-0.051	-0.051	0.19	0.189	0.19	0.19	0.189	0.191	0.189	0.188
535.45	-0.051	-0.05	0.19	0.19	0.191	0.19	0.191	0.192	0.19	0.189
535.79	-0.05	-0.049	0.191	0.191	0.192	0.192	0.192	0.193	0.191	0.191
536.14	-0.049	-0.049	0.193	0.191	0.192	0.192	0.192	0.193	0.192	0.192
536.49	-0.048	-0.048	0.194	0.192	0.193	0.194	0.194	0.195	0.194	0.193
536.83	-0.047	-0.047	0.194	0.194	0.194	0.194	0.195	0.196	0.194	0.193
537.18	-0.046	-0.046	0.195	0.195	0.194	0.196	0.195	0.197	0.195	0.193
537.53	-0.045	-0.046	0.195	0.195	0.196	0.196	0.196	0.199	0.196	0.195
537.87	-0.044	-0.045	0.196	0.195	0.195	0.197	0.197	0.199	0.197	0.196
538.22	-0.043	-0.044	0.197	0.194	0.195	0.197	0.197	0.2	0.197	0.197
538.57	-0.043	-0.044	0.197	0.194	0.196	0.197	0.198	0.199	0.198	0.197
538.91	-0.042	-0.043	0.197	0.195	0.197	0.198	0.199	0.2	0.198	0.198
539.26	-0.042	-0.042	0.198	0.196	0.198	0.199	0.2	0.2	0.2	0.199
539.6	-0.041	-0.042	0.199	0.196	0.199	0.199	0.201	0.201	0.2	0.199
539.95	-0.041	-0.041	0.199	0.198	0.2	0.199	0.202	0.202	0.2	0.199
540.3	-0.041	-0.041	0.199	0.199	0.2	0.2	0.202	0.201	0.2	0.199
540.64	-0.04	-0.04	0.201	0.2	0.201	0.202	0.202	0.201	0.201	0.201
540.99	-0.039	-0.038	0.201	0.2	0.202	0.202	0.203	0.202	0.203	0.201

541.33	-0.039	-0.037	0.202	0.202	0.203	0.203	0.204	0.202	0.204	0.202
541.68	-0.038	-0.037	0.203	0.203	0.205	0.205	0.205	0.203	0.205	0.203
542.02	-0.039	-0.036	0.204	0.205	0.205	0.206	0.206	0.204	0.206	0.204
542.37	-0.038	-0.036	0.204	0.205	0.206	0.207	0.207	0.205	0.206	0.204
542.72	-0.037	-0.035	0.205	0.205	0.207	0.207	0.206	0.206	0.206	0.205
543.06	-0.035	-0.034	0.206	0.207	0.207	0.208	0.206	0.207	0.207	0.206
543.41	-0.035	-0.033	0.207	0.207	0.208	0.209	0.207	0.207	0.207	0.206
543.75	-0.033	-0.031	0.207	0.208	0.208	0.21	0.208	0.208	0.208	0.208
544.1	-0.032	-0.03	0.208	0.209	0.209	0.211	0.208	0.21	0.209	0.209
544.44	-0.031	-0.029	0.208	0.209	0.209	0.21	0.208	0.211	0.209	0.209
544.79	-0.03	-0.028	0.208	0.209	0.209	0.211	0.209	0.21	0.209	0.209
545.13	-0.028	-0.027	0.21	0.21	0.209	0.212	0.21	0.211	0.21	0.21
545.48	-0.027	-0.026	0.211	0.211	0.21	0.212	0.21	0.212	0.21	0.211
545.82	-0.026	-0.025	0.211	0.211	0.21	0.212	0.211	0.212	0.21	0.211
546.17	-0.024	-0.024	0.212	0.212	0.21	0.213	0.212	0.212	0.211	0.212
546.52	-0.023	-0.023	0.213	0.213	0.212	0.214	0.214	0.214	0.212	0.212
546.86	-0.023	-0.022	0.214	0.214	0.213	0.215	0.215	0.215	0.214	0.213
547.21	-0.021	-0.021	0.215	0.216	0.214	0.216	0.216	0.216	0.215	0.215
547.55	-0.021	-0.02	0.216	0.216	0.214	0.216	0.217	0.216	0.216	0.216
547.9	-0.019	-0.019	0.217	0.217	0.216	0.218	0.219	0.218	0.217	0.217
548.24	-0.018	-0.018	0.218	0.217	0.218	0.22	0.22	0.219	0.219	0.218
548.59	-0.017	-0.017	0.22	0.218	0.219	0.221	0.222	0.221	0.22	0.219
548.93	-0.016	-0.016	0.221	0.22	0.22	0.222	0.223	0.222	0.222	0.221
549.28	-0.015	-0.015	0.222	0.221	0.221	0.223	0.224	0.224	0.223	0.222
549.62	-0.013	-0.013	0.223	0.222	0.223	0.224	0.225	0.226	0.225	0.225
549.96	-0.011	-0.012	0.224	0.223	0.225	0.226	0.227	0.228	0.226	0.227
550.31	-0.011	-0.01	0.224	0.225	0.224	0.226	0.227	0.227	0.226	0.228
550.65	-0.008	-0.009	0.225	0.226	0.225	0.227	0.228	0.228	0.227	0.229
551	-0.007	-0.007	0.226	0.226	0.225	0.227	0.229	0.229	0.228	0.23
551.34	-0.006	-0.006	0.228	0.227	0.227	0.229	0.23	0.23	0.229	0.231
551.69	-0.005	-0.005	0.229	0.229	0.229	0.231	0.231	0.231	0.23	0.233
552.03	-0.003	-0.003	0.231	0.231	0.23	0.232	0.233	0.233	0.232	0.234
552.38	-0.002	-0.002	0.233	0.232	0.232	0.234	0.234	0.234	0.233	0.236
552.72	-0.001	0	0.235	0.232	0.234	0.234	0.235	0.236	0.234	0.236
553.07	0	0.001	0.236	0.233	0.235	0.236	0.236	0.236	0.235	0.237
553.41	0.002	0.003	0.237	0.235	0.237	0.238	0.238	0.238	0.237	0.238
553.75	0.003	0.005	0.239	0.236	0.238	0.239	0.24	0.24	0.239	0.239
554.1	0.005	0.006	0.24	0.237	0.241	0.241	0.242	0.243	0.241	0.24
554.44	0.006	0.008	0.242	0.238	0.243	0.243	0.243	0.245	0.242	0.242

554.79	0.008	0.009	0.243	0.239	0.244	0.245	0.245	0.247	0.244	0.243
555.13	0.009	0.01	0.244	0.24	0.246	0.246	0.246	0.248	0.246	0.244
555.47	0.011	0.012	0.246	0.243	0.246	0.247	0.248	0.249	0.247	0.245
555.82	0.013	0.013	0.248	0.244	0.247	0.248	0.25	0.251	0.248	0.247
556.16	0.015	0.015	0.249	0.246	0.249	0.25	0.252	0.253	0.251	0.249
556.51	0.017	0.017	0.25	0.248	0.25	0.252	0.253	0.254	0.252	0.251
556.85	0.02	0.019	0.252	0.25	0.252	0.253	0.255	0.255	0.253	0.253
557.19	0.022	0.022	0.254	0.252	0.252	0.255	0.256	0.256	0.254	0.254
557.54	0.024	0.023	0.256	0.253	0.254	0.257	0.258	0.257	0.256	0.256
557.88	0.025	0.025	0.257	0.255	0.254	0.258	0.26	0.258	0.257	0.258
558.22	0.028	0.028	0.259	0.258	0.256	0.26	0.262	0.259	0.258	0.26
558.57	0.03	0.03	0.261	0.26	0.258	0.261	0.264	0.26	0.26	0.262
558.91	0.033	0.033	0.263	0.262	0.26	0.263	0.266	0.262	0.261	0.265
559.26	0.035	0.035	0.264	0.264	0.262	0.264	0.267	0.263	0.263	0.266
559.6	0.036	0.036	0.265	0.266	0.265	0.266	0.268	0.264	0.264	0.267
559.94	0.038	0.038	0.268	0.267	0.266	0.268	0.269	0.265	0.265	0.268
560.29	0.04	0.04	0.269	0.269	0.267	0.269	0.272	0.266	0.267	0.269
560.63	0.041	0.041	0.27	0.27	0.268	0.271	0.272	0.268	0.269	0.27
560.97	0.043	0.043	0.272	0.273	0.271	0.273	0.275	0.27	0.271	0.272
561.32	0.045	0.045	0.273	0.275	0.273	0.274	0.276	0.272	0.273	0.274
561.66	0.047	0.047	0.276	0.277	0.277	0.277	0.277	0.274	0.275	0.275
562	0.048	0.049	0.276	0.279	0.278	0.278	0.279	0.277	0.277	0.276
562.34	0.051	0.051	0.278	0.281	0.28	0.28	0.282	0.28	0.28	0.278
562.69	0.052	0.052	0.28	0.282	0.281	0.282	0.283	0.282	0.281	0.279
563.03	0.054	0.055	0.282	0.283	0.282	0.284	0.285	0.284	0.284	0.28
563.37	0.056	0.057	0.284	0.284	0.283	0.285	0.287	0.286	0.285	0.282
563.72	0.058	0.059	0.286	0.286	0.285	0.286	0.289	0.289	0.288	0.284
564.06	0.06	0.062	0.288	0.288	0.287	0.287	0.291	0.292	0.29	0.286
564.4	0.063	0.064	0.29	0.291	0.29	0.29	0.293	0.295	0.294	0.29
564.75	0.065	0.066	0.292	0.293	0.292	0.291	0.295	0.296	0.295	0.292
565.09	0.067	0.068	0.294	0.294	0.293	0.293	0.297	0.298	0.297	0.293
565.43	0.069	0.07	0.294	0.296	0.294	0.295	0.3	0.3	0.299	0.295
565.77	0.071	0.072	0.297	0.297	0.296	0.298	0.303	0.302	0.3	0.298
566.12	0.072	0.073	0.298	0.299	0.298	0.299	0.303	0.301	0.301	0.298
566.46	0.075	0.076	0.299	0.302	0.3	0.301	0.306	0.303	0.303	0.302
566.8	0.078	0.078	0.3	0.304	0.302	0.304	0.307	0.304	0.305	0.304
567.14	0.081	0.081	0.302	0.306	0.304	0.306	0.309	0.306	0.307	0.306
567.49	0.084	0.083	0.305	0.308	0.307	0.31	0.311	0.307	0.308	0.308
567.83	0.086	0.085	0.306	0.31	0.309	0.313	0.312	0.31	0.31	0.31

568.17	0.088	0.087	0.308	0.311	0.311	0.314	0.313	0.311	0.311	0.311
568.51	0.089	0.089	0.31	0.312	0.312	0.316	0.314	0.313	0.312	0.312
568.85	0.092	0.092	0.313	0.315	0.314	0.318	0.316	0.315	0.314	0.313
569.2	0.094	0.094	0.316	0.316	0.317	0.318	0.317	0.317	0.316	0.316
569.54	0.097	0.097	0.317	0.319	0.319	0.319	0.318	0.318	0.319	0.317
569.88	0.1	0.099	0.319	0.32	0.321	0.321	0.319	0.321	0.321	0.319
570.22	0.101	0.101	0.321	0.321	0.323	0.322	0.32	0.322	0.322	0.32
570.57	0.103	0.102	0.323	0.323	0.324	0.323	0.322	0.323	0.324	0.322
570.91	0.104	0.104	0.324	0.325	0.326	0.325	0.323	0.325	0.325	0.323
571.25	0.105	0.106	0.325	0.327	0.326	0.325	0.325	0.326	0.326	0.324
571.59	0.108	0.108	0.326	0.329	0.328	0.326	0.327	0.327	0.327	0.326
571.93	0.109	0.111	0.328	0.331	0.329	0.327	0.329	0.329	0.33	0.329
572.27	0.111	0.112	0.329	0.332	0.331	0.328	0.33	0.33	0.332	0.332
572.62	0.113	0.114	0.33	0.334	0.335	0.331	0.332	0.333	0.334	0.335
572.96	0.116	0.117	0.332	0.336	0.336	0.334	0.333	0.335	0.336	0.336
573.3	0.118	0.119	0.335	0.337	0.338	0.336	0.335	0.337	0.336	0.338
573.64	0.119	0.121	0.337	0.339	0.339	0.336	0.337	0.338	0.337	0.34
573.98	0.122	0.123	0.339	0.342	0.341	0.338	0.34	0.341	0.34	0.342
574.32	0.125	0.126	0.341	0.342	0.344	0.341	0.342	0.343	0.342	0.344
574.67	0.128	0.128	0.343	0.343	0.346	0.343	0.344	0.345	0.344	0.346
575.01	0.13	0.131	0.344	0.345	0.349	0.344	0.346	0.348	0.345	0.349
575.35	0.133	0.133	0.346	0.347	0.351	0.346	0.348	0.351	0.348	0.352
575.69	0.135	0.134	0.349	0.349	0.353	0.348	0.35	0.352	0.349	0.353
576.03	0.137	0.137	0.351	0.352	0.357	0.351	0.353	0.355	0.352	0.356
576.37	0.139	0.138	0.352	0.354	0.356	0.353	0.355	0.355	0.353	0.357
576.71	0.14	0.139	0.352	0.355	0.356	0.353	0.355	0.355	0.353	0.358
577.05	0.141	0.14	0.353	0.358	0.358	0.355	0.357	0.357	0.355	0.361
577.4	0.144	0.142	0.354	0.361	0.36	0.358	0.358	0.358	0.357	0.361
577.74	0.146	0.144	0.356	0.363	0.361	0.361	0.36	0.36	0.36	0.365
578.08	0.148	0.147	0.36	0.365	0.363	0.362	0.363	0.363	0.363	0.366
578.42	0.15	0.15	0.362	0.367	0.366	0.364	0.365	0.365	0.366	0.367
578.76	0.151	0.151	0.364	0.368	0.365	0.366	0.366	0.366	0.367	0.368
579.1	0.153	0.154	0.366	0.369	0.367	0.368	0.367	0.367	0.368	0.369
579.44	0.156	0.157	0.367	0.372	0.369	0.37	0.369	0.369	0.371	0.37
579.78	0.158	0.159	0.368	0.373	0.369	0.371	0.37	0.37	0.372	0.369
580.12	0.16	0.162	0.371	0.375	0.371	0.372	0.37	0.371	0.374	0.372
580.46	0.164	0.165	0.373	0.378	0.375	0.375	0.374	0.373	0.376	0.373
580.8	0.166	0.168	0.377	0.378	0.377	0.378	0.378	0.375	0.379	0.375
581.14	0.168	0.172	0.381	0.379	0.378	0.379	0.381	0.378	0.381	0.377

581.49	0.17	0.174	0.382	0.379	0.38	0.38	0.383	0.38	0.382	0.377
581.83	0.173	0.176	0.383	0.382	0.382	0.382	0.385	0.382	0.383	0.379
582.17	0.175	0.178	0.385	0.384	0.383	0.382	0.385	0.383	0.384	0.38
582.51	0.177	0.18	0.387	0.388	0.385	0.385	0.388	0.386	0.386	0.383
582.85	0.18	0.183	0.389	0.389	0.387	0.386	0.391	0.388	0.387	0.385
583.19	0.181	0.185	0.389	0.391	0.389	0.388	0.392	0.39	0.388	0.387
583.53	0.183	0.187	0.392	0.393	0.391	0.391	0.395	0.392	0.391	0.389
583.87	0.186	0.19	0.394	0.394	0.393	0.394	0.397	0.394	0.394	0.39
584.21	0.188	0.193	0.395	0.395	0.394	0.395	0.398	0.396	0.397	0.393
584.55	0.19	0.195	0.396	0.398	0.395	0.396	0.399	0.397	0.398	0.394
584.89	0.193	0.196	0.396	0.4	0.398	0.398	0.4	0.398	0.4	0.396
585.23	0.196	0.199	0.399	0.402	0.4	0.4	0.401	0.399	0.402	0.397
585.57	0.199	0.202	0.4	0.404	0.402	0.402	0.403	0.402	0.403	0.399
585.91	0.201	0.203	0.401	0.406	0.403	0.404	0.405	0.403	0.404	0.402
586.25	0.204	0.206	0.403	0.406	0.405	0.405	0.405	0.405	0.406	0.403
586.59	0.206	0.207	0.405	0.408	0.407	0.408	0.407	0.406	0.409	0.405
586.93	0.209	0.209	0.409	0.41	0.409	0.41	0.41	0.409	0.412	0.408
587.27	0.212	0.212	0.411	0.413	0.411	0.413	0.412	0.411	0.412	0.409
587.61	0.214	0.214	0.413	0.414	0.412	0.413	0.414	0.413	0.413	0.41
587.95	0.216	0.216	0.417	0.417	0.414	0.416	0.416	0.415	0.415	0.413
588.29	0.219	0.218	0.418	0.418	0.416	0.418	0.417	0.416	0.416	0.414
588.63	0.222	0.222	0.421	0.42	0.418	0.419	0.419	0.418	0.419	0.417
588.97	0.224	0.224	0.424	0.423	0.42	0.422	0.423	0.421	0.423	0.422
589.3	0.227	0.226	0.425	0.424	0.422	0.424	0.425	0.423	0.426	0.424
589.64	0.23	0.23	0.427	0.426	0.425	0.425	0.426	0.425	0.428	0.426
589.98	0.233	0.233	0.428	0.43	0.427	0.426	0.43	0.426	0.43	0.428
590.32	0.236	0.235	0.43	0.432	0.429	0.427	0.433	0.429	0.432	0.431
590.66	0.239	0.237	0.432	0.434	0.43	0.429	0.434	0.43	0.432	0.433
591	0.242	0.239	0.433	0.435	0.431	0.431	0.436	0.431	0.433	0.435
591.34	0.246	0.242	0.437	0.439	0.435	0.434	0.439	0.434	0.437	0.438
591.68	0.249	0.245	0.438	0.441	0.437	0.437	0.441	0.436	0.438	0.44
592.02	0.252	0.249	0.44	0.443	0.44	0.44	0.445	0.44	0.44	0.442
592.36	0.255	0.252	0.442	0.445	0.442	0.442	0.446	0.442	0.44	0.444
592.7	0.259	0.255	0.443	0.447	0.444	0.445	0.447	0.444	0.442	0.446
593.04	0.261	0.258	0.446	0.448	0.446	0.448	0.449	0.447	0.443	0.448
593.37	0.264	0.26	0.449	0.451	0.449	0.452	0.452	0.449	0.446	0.45
593.71	0.267	0.264	0.452	0.451	0.451	0.456	0.453	0.451	0.448	0.454
594.05	0.27	0.269	0.455	0.452	0.454	0.459	0.456	0.453	0.451	0.455
594.39	0.273	0.274	0.457	0.455	0.458	0.461	0.459	0.456	0.454	0.457

594.73	0.276	0.278	0.462	0.459	0.461	0.464	0.461	0.46	0.459	0.46
595.07	0.279	0.282	0.464	0.46	0.463	0.466	0.462	0.462	0.46	0.461
595.41	0.283	0.285	0.467	0.463	0.465	0.468	0.465	0.466	0.462	0.464
595.75	0.286	0.288	0.47	0.466	0.468	0.47	0.468	0.468	0.467	0.466
596.08	0.29	0.29	0.472	0.468	0.47	0.472	0.47	0.47	0.469	0.468
596.42	0.292	0.293	0.475	0.47	0.471	0.472	0.472	0.471	0.47	0.47
596.76	0.297	0.297	0.477	0.474	0.473	0.474	0.477	0.473	0.474	0.471
597.1	0.301	0.301	0.481	0.477	0.475	0.478	0.48	0.476	0.476	0.474
597.44	0.305	0.304	0.483	0.482	0.478	0.481	0.481	0.479	0.479	0.477
597.78	0.309	0.307	0.486	0.486	0.481	0.485	0.483	0.483	0.482	0.478
598.11	0.313	0.311	0.49	0.488	0.484	0.487	0.486	0.487	0.485	0.482
598.45	0.316	0.314	0.492	0.491	0.487	0.49	0.49	0.49	0.488	0.486
598.79	0.319	0.316	0.493	0.493	0.49	0.493	0.493	0.491	0.491	0.49
599.13	0.321	0.319	0.494	0.495	0.49	0.495	0.495	0.492	0.494	0.491
599.47	0.325	0.322	0.496	0.496	0.492	0.498	0.494	0.493	0.495	0.495
599.81	0.328	0.328	0.499	0.501	0.495	0.5	0.497	0.498	0.5	0.499
600.14	0.333	0.332	0.5	0.504	0.499	0.504	0.499	0.503	0.503	0.502
600.48	0.336	0.335	0.501	0.505	0.501	0.505	0.5	0.503	0.505	0.505
600.82	0.339	0.338	0.503	0.507	0.503	0.505	0.5	0.504	0.507	0.505
601.16	0.342	0.341	0.505	0.509	0.507	0.508	0.505	0.507	0.51	0.506
601.49	0.343	0.344	0.507	0.511	0.509	0.508	0.506	0.507	0.511	0.509
601.83	0.345	0.347	0.505	0.514	0.509	0.509	0.507	0.509	0.513	0.509
602.17	0.348	0.351	0.506	0.516	0.513	0.512	0.51	0.512	0.515	0.511
602.51	0.35	0.354	0.51	0.519	0.514	0.513	0.511	0.515	0.517	0.513
602.85	0.355	0.359	0.513	0.522	0.517	0.516	0.514	0.518	0.519	0.516
603.18	0.357	0.362	0.515	0.524	0.518	0.518	0.517	0.52	0.521	0.515
603.52	0.359	0.365	0.517	0.524	0.521	0.52	0.52	0.521	0.523	0.516
603.86	0.362	0.369	0.521	0.528	0.523	0.522	0.523	0.523	0.526	0.519
604.2	0.363	0.373	0.525	0.53	0.526	0.527	0.526	0.527	0.529	0.522
604.53	0.366	0.376	0.525	0.532	0.526	0.529	0.53	0.531	0.531	0.524
604.87	0.369	0.38	0.525	0.533	0.525	0.529	0.531	0.531	0.53	0.525
605.21	0.374	0.384	0.528	0.535	0.527	0.532	0.534	0.534	0.532	0.529
605.54	0.376	0.388	0.532	0.536	0.531	0.534	0.534	0.536	0.534	0.531
605.88	0.378	0.39	0.535	0.537	0.532	0.535	0.533	0.536	0.535	0.532
606.22	0.381	0.393	0.534	0.539	0.533	0.537	0.535	0.537	0.537	0.534
606.56	0.381	0.394	0.534	0.54	0.536	0.537	0.538	0.537	0.538	0.535
606.89	0.385	0.396	0.537	0.543	0.539	0.537	0.54	0.54	0.538	0.538
607.23	0.387	0.398	0.54	0.545	0.538	0.539	0.543	0.542	0.537	0.54
607.57	0.387	0.399	0.54	0.543	0.538	0.538	0.543	0.541	0.538	0.539

607.9	0.389	0.398	0.541	0.544	0.538	0.538	0.543	0.539	0.537	0.54
608.24	0.39	0.399	0.543	0.546	0.541	0.539	0.544	0.54	0.539	0.543
608.58	0.392	0.4	0.545	0.547	0.543	0.54	0.544	0.541	0.542	0.544
608.91	0.391	0.398	0.543	0.545	0.542	0.54	0.543	0.542	0.543	0.544
609.25	0.393	0.397	0.543	0.547	0.542	0.541	0.548	0.544	0.545	0.545
609.59	0.394	0.398	0.542	0.546	0.543	0.541	0.55	0.545	0.544	0.545
609.92	0.397	0.398	0.545	0.546	0.545	0.542	0.551	0.546	0.546	0.546
610.26	0.399	0.4	0.548	0.547	0.546	0.545	0.55	0.548	0.547	0.546
610.6	0.4	0.403	0.548	0.547	0.548	0.546	0.55	0.549	0.55	0.547
610.93	0.4	0.402	0.547	0.547	0.547	0.546	0.549	0.548	0.553	0.547
611.27	0.401	0.404	0.549	0.547	0.547	0.548	0.549	0.55	0.554	0.547
611.61	0.403	0.407	0.552	0.55	0.551	0.55	0.552	0.555	0.557	0.549
611.94	0.405	0.408	0.553	0.549	0.552	0.551	0.552	0.555	0.558	0.547
612.28	0.406	0.407	0.554	0.549	0.55	0.551	0.552	0.556	0.559	0.547
612.61	0.41	0.411	0.557	0.552	0.554	0.555	0.555	0.558	0.56	0.549
612.95	0.412	0.412	0.557	0.553	0.555	0.556	0.552	0.556	0.56	0.548
613.29	0.413	0.415	0.557	0.555	0.556	0.556	0.555	0.556	0.562	0.549
613.62	0.415	0.416	0.556	0.556	0.557	0.557	0.555	0.557	0.56	0.549
613.96	0.416	0.416	0.556	0.557	0.559	0.559	0.557	0.558	0.562	0.553
614.3	0.417	0.416	0.554	0.557	0.558	0.56	0.557	0.558	0.561	0.554
614.63	0.418	0.417	0.556	0.559	0.561	0.563	0.56	0.561	0.561	0.555
614.97	0.419	0.419	0.556	0.56	0.563	0.564	0.561	0.561	0.56	0.557
615.3	0.42	0.419	0.554	0.559	0.563	0.564	0.561	0.56	0.558	0.556
615.64	0.42	0.419	0.554	0.56	0.563	0.563	0.56	0.56	0.559	0.558
615.97	0.421	0.423	0.556	0.562	0.566	0.563	0.56	0.562	0.561	0.559
616.31	0.42	0.421	0.557	0.561	0.565	0.562	0.56	0.562	0.56	0.559
616.65	0.421	0.422	0.557	0.561	0.564	0.561	0.562	0.563	0.561	0.564
616.98	0.421	0.422	0.561	0.562	0.565	0.565	0.561	0.565	0.562	0.565
617.32	0.421	0.424	0.562	0.564	0.564	0.566	0.563	0.567	0.563	0.567
617.65	0.424	0.428	0.564	0.566	0.563	0.566	0.563	0.566	0.565	0.566
617.99	0.425	0.429	0.567	0.568	0.563	0.567	0.565	0.568	0.564	0.567
618.32	0.426	0.429	0.568	0.569	0.562	0.566	0.564	0.567	0.566	0.568
618.66	0.428	0.428	0.568	0.57	0.563	0.566	0.564	0.568	0.568	0.566
618.99	0.428	0.428	0.57	0.57	0.564	0.567	0.564	0.568	0.568	0.567
619.33	0.428	0.428	0.571	0.569	0.565	0.569	0.565	0.568	0.567	0.567
619.66	0.429	0.429	0.57	0.569	0.565	0.567	0.565	0.568	0.567	0.567
620	0.431	0.432	0.569	0.569	0.565	0.567	0.567	0.567	0.567	0.569
620.33	0.432	0.434	0.571	0.572	0.568	0.57	0.569	0.57	0.568	0.567
620.67	0.434	0.436	0.571	0.573	0.569	0.569	0.569	0.567	0.572	0.568

621	0.432	0.435	0.572	0.574	0.569	0.567	0.567	0.568	0.57	0.568
621.34	0.431	0.434	0.572	0.574	0.571	0.567	0.567	0.569	0.568	0.568
621.67	0.431	0.434	0.572	0.574	0.572	0.566	0.567	0.57	0.568	0.569
622.01	0.433	0.436	0.574	0.576	0.577	0.568	0.569	0.572	0.571	0.571
622.34	0.434	0.439	0.574	0.575	0.578	0.57	0.569	0.571	0.571	0.574
622.68	0.435	0.439	0.572	0.574	0.576	0.569	0.569	0.569	0.573	0.572
623.01	0.436	0.44	0.574	0.576	0.577	0.569	0.568	0.57	0.574	0.574
623.35	0.436	0.439	0.575	0.577	0.576	0.572	0.568	0.569	0.574	0.577
623.68	0.436	0.438	0.575	0.577	0.576	0.574	0.567	0.568	0.573	0.575
624.02	0.435	0.438	0.574	0.576	0.575	0.574	0.565	0.568	0.574	0.575
624.35	0.436	0.439	0.574	0.576	0.575	0.574	0.565	0.569	0.57	0.574
624.69	0.44	0.44	0.572	0.576	0.579	0.575	0.567	0.571	0.575	0.575
625.02	0.44	0.439	0.571	0.572	0.576	0.572	0.567	0.569	0.574	0.574
625.36	0.44	0.439	0.571	0.573	0.575	0.575	0.566	0.567	0.575	0.573
625.69	0.437	0.437	0.568	0.571	0.572	0.574	0.566	0.566	0.572	0.572
626.02	0.436	0.436	0.569	0.57	0.572	0.573	0.568	0.566	0.572	0.571
626.36	0.436	0.436	0.57	0.572	0.572	0.573	0.568	0.568	0.572	0.571
626.69	0.437	0.437	0.572	0.574	0.571	0.573	0.569	0.569	0.574	0.57
627.03	0.439	0.438	0.573	0.573	0.572	0.572	0.572	0.57	0.575	0.57
627.36	0.439	0.439	0.575	0.575	0.574	0.571	0.573	0.573	0.576	0.572
627.7	0.441	0.44	0.576	0.574	0.574	0.571	0.576	0.574	0.574	0.572
628.03	0.441	0.439	0.576	0.573	0.572	0.573	0.577	0.573	0.577	0.572
628.36	0.439	0.439	0.578	0.574	0.571	0.573	0.578	0.572	0.576	0.572
628.7	0.44	0.439	0.578	0.575	0.572	0.574	0.579	0.574	0.578	0.574
629.03	0.44	0.44	0.578	0.575	0.571	0.572	0.578	0.576	0.578	0.575
629.36	0.442	0.441	0.58	0.575	0.573	0.572	0.579	0.578	0.579	0.575
629.7	0.443	0.441	0.579	0.576	0.573	0.572	0.578	0.579	0.578	0.574
630.03	0.443	0.443	0.581	0.577	0.575	0.572	0.58	0.579	0.578	0.576
630.37	0.442	0.442	0.579	0.574	0.575	0.572	0.579	0.578	0.575	0.575
630.7	0.442	0.441	0.576	0.574	0.575	0.572	0.577	0.578	0.574	0.574
631.03	0.44	0.441	0.574	0.572	0.573	0.571	0.576	0.577	0.573	0.572
631.37	0.439	0.441	0.573	0.57	0.572	0.569	0.573	0.576	0.573	0.57
631.7	0.439	0.442	0.572	0.57	0.572	0.568	0.573	0.576	0.57	0.57
632.03	0.439	0.44	0.57	0.57	0.57	0.567	0.57	0.575	0.569	0.568
632.37	0.439	0.441	0.569	0.568	0.571	0.567	0.569	0.573	0.569	0.568
632.7	0.438	0.44	0.57	0.569	0.573	0.57	0.57	0.571	0.571	0.568
633.03	0.438	0.442	0.569	0.568	0.572	0.571	0.571	0.571	0.572	0.567
633.37	0.439	0.442	0.571	0.568	0.572	0.571	0.571	0.571	0.574	0.569
633.7	0.438	0.442	0.568	0.566	0.571	0.57	0.568	0.572	0.573	0.568

634.03	0.438	0.442	0.568	0.567	0.571	0.569	0.569	0.573	0.573	0.571
634.37	0.438	0.443	0.568	0.567	0.571	0.569	0.571	0.573	0.573	0.572
634.7	0.438	0.443	0.569	0.567	0.571	0.569	0.571	0.572	0.574	0.57
635.03	0.439	0.443	0.569	0.568	0.573	0.571	0.57	0.573	0.575	0.572
635.37	0.437	0.442	0.569	0.567	0.573	0.567	0.569	0.572	0.574	0.57
635.7	0.439	0.442	0.568	0.566	0.571	0.567	0.571	0.573	0.575	0.571
636.03	0.438	0.441	0.57	0.567	0.569	0.568	0.572	0.57	0.573	0.569
636.36	0.436	0.439	0.567	0.564	0.568	0.564	0.571	0.57	0.568	0.568
636.7	0.435	0.436	0.563	0.563	0.565	0.561	0.567	0.566	0.564	0.565
637.03	0.434	0.434	0.562	0.562	0.564	0.56	0.567	0.565	0.562	0.563
637.36	0.434	0.433	0.564	0.563	0.565	0.563	0.567	0.565	0.563	0.564
637.69	0.433	0.432	0.564	0.564	0.566	0.564	0.568	0.563	0.562	0.563
638.03	0.433	0.43	0.562	0.562	0.565	0.563	0.565	0.561	0.561	0.564
638.36	0.433	0.43	0.562	0.563	0.565	0.563	0.563	0.564	0.561	0.565
638.69	0.432	0.429	0.563	0.564	0.564	0.562	0.566	0.564	0.561	0.564
639.02	0.432	0.428	0.563	0.565	0.564	0.566	0.569	0.565	0.561	0.566
639.36	0.43	0.427	0.564	0.564	0.565	0.564	0.565	0.565	0.562	0.563
639.69	0.43	0.427	0.562	0.562	0.565	0.563	0.563	0.568	0.563	0.563
640.02	0.43	0.428	0.561	0.561	0.566	0.563	0.562	0.566	0.564	0.563
640.35	0.43	0.429	0.565	0.565	0.567	0.565	0.565	0.57	0.566	0.567
640.69	0.429	0.431	0.564	0.565	0.566	0.564	0.561	0.57	0.566	0.569
641.02	0.429	0.433	0.562	0.564	0.564	0.563	0.56	0.568	0.566	0.569
641.35	0.429	0.434	0.562	0.563	0.564	0.565	0.561	0.567	0.567	0.567
641.68	0.429	0.433	0.56	0.564	0.564	0.564	0.562	0.57	0.57	0.564
642.01	0.428	0.433	0.559	0.563	0.564	0.563	0.561	0.569	0.568	0.562
642.35	0.425	0.432	0.559	0.564	0.564	0.561	0.558	0.568	0.568	0.564
642.68	0.424	0.432	0.559	0.566	0.565	0.561	0.557	0.568	0.569	0.565
643.01	0.425	0.433	0.559	0.566	0.567	0.563	0.559	0.567	0.569	0.566
643.34	0.426	0.434	0.56	0.568	0.568	0.562	0.561	0.566	0.569	0.569
643.67	0.428	0.435	0.563	0.569	0.567	0.566	0.566	0.567	0.571	0.568
644	0.427	0.436	0.564	0.569	0.572	0.566	0.567	0.569	0.571	0.568
644.34	0.429	0.435	0.565	0.569	0.575	0.567	0.569	0.569	0.572	0.568
644.67	0.428	0.434	0.564	0.567	0.573	0.568	0.57	0.568	0.572	0.566
645	0.429	0.433	0.564	0.567	0.571	0.569	0.567	0.57	0.57	0.567
645.33	0.429	0.433	0.565	0.567	0.572	0.571	0.569	0.568	0.568	0.569
645.66	0.429	0.433	0.569	0.567	0.574	0.572	0.569	0.568	0.57	0.572
645.99	0.43	0.434	0.568	0.567	0.574	0.573	0.569	0.568	0.571	0.572
646.32	0.433	0.435	0.569	0.564	0.575	0.572	0.568	0.567	0.572	0.574
646.66	0.432	0.437	0.569	0.564	0.572	0.572	0.568	0.569	0.574	0.575

646.99	0.434	0.439	0.572	0.566	0.572	0.575	0.568	0.571	0.576	0.574
647.32	0.434	0.439	0.571	0.566	0.573	0.575	0.565	0.573	0.573	0.576
647.65	0.435	0.438	0.571	0.564	0.572	0.573	0.565	0.573	0.573	0.576
647.98	0.437	0.44	0.573	0.568	0.575	0.576	0.567	0.576	0.575	0.579
648.31	0.439	0.442	0.574	0.572	0.577	0.574	0.569	0.581	0.577	0.58
648.64	0.441	0.445	0.578	0.575	0.581	0.575	0.574	0.585	0.58	0.582
648.97	0.444	0.448	0.582	0.578	0.584	0.577	0.576	0.586	0.583	0.58
649.3	0.446	0.449	0.582	0.579	0.582	0.577	0.578	0.587	0.583	0.58
649.64	0.449	0.451	0.584	0.581	0.586	0.582	0.581	0.588	0.585	0.58
649.97	0.451	0.452	0.586	0.585	0.587	0.586	0.583	0.591	0.584	0.581
650.3	0.453	0.455	0.587	0.588	0.59	0.588	0.584	0.591	0.583	0.581
650.63	0.454	0.458	0.588	0.589	0.592	0.591	0.587	0.592	0.583	0.585
650.96	0.458	0.46	0.594	0.592	0.593	0.591	0.588	0.589	0.586	0.585
651.29	0.461	0.463	0.596	0.594	0.59	0.595	0.591	0.59	0.587	0.587
651.62	0.464	0.464	0.596	0.591	0.588	0.593	0.591	0.589	0.586	0.586
651.95	0.467	0.467	0.602	0.595	0.59	0.597	0.593	0.59	0.589	0.59
652.28	0.468	0.469	0.603	0.596	0.59	0.598	0.594	0.589	0.589	0.591
652.61	0.469	0.47	0.605	0.599	0.59	0.6	0.596	0.591	0.59	0.597
652.94	0.472	0.472	0.605	0.597	0.595	0.602	0.595	0.593	0.592	0.599
653.27	0.476	0.476	0.608	0.6	0.594	0.6	0.595	0.594	0.593	0.6
653.6	0.479	0.48	0.61	0.601	0.594	0.6	0.595	0.595	0.594	0.6
653.93	0.482	0.483	0.612	0.604	0.598	0.602	0.599	0.598	0.597	0.604
654.26	0.485	0.485	0.611	0.604	0.601	0.601	0.598	0.6	0.599	0.604
654.59	0.488	0.488	0.611	0.606	0.605	0.603	0.6	0.604	0.603	0.608
654.92	0.491	0.49	0.613	0.611	0.613	0.604	0.601	0.608	0.607	0.609
655.25	0.491	0.494	0.614	0.615	0.615	0.607	0.605	0.61	0.609	0.612
655.58	0.494	0.496	0.614	0.615	0.617	0.607	0.606	0.612	0.608	0.613
655.91	0.501	0.5	0.618	0.618	0.62	0.61	0.608	0.617	0.614	0.615
656.24	0.504	0.505	0.615	0.619	0.623	0.61	0.608	0.617	0.616	0.614
656.57	0.508	0.511	0.619	0.626	0.627	0.615	0.616	0.621	0.621	0.617
656.9	0.509	0.515	0.618	0.624	0.629	0.62	0.619	0.625	0.623	0.621
657.23	0.514	0.519	0.619	0.627	0.633	0.623	0.624	0.627	0.627	0.622
657.56	0.519	0.522	0.621	0.631	0.635	0.626	0.627	0.631	0.631	0.626
657.89	0.523	0.526	0.625	0.636	0.64	0.631	0.629	0.632	0.634	0.625
658.22	0.528	0.531	0.627	0.64	0.641	0.633	0.635	0.635	0.637	0.627
658.55	0.533	0.538	0.629	0.641	0.642	0.636	0.635	0.637	0.641	0.629
658.88	0.539	0.545	0.632	0.646	0.646	0.638	0.636	0.639	0.644	0.632
659.21	0.542	0.549	0.635	0.649	0.648	0.639	0.64	0.64	0.647	0.636
659.54	0.543	0.552	0.635	0.65	0.649	0.638	0.638	0.64	0.646	0.638

659.87	0.551	0.559	0.642	0.656	0.651	0.643	0.644	0.645	0.651	0.644
660.2	0.556	0.563	0.647	0.66	0.654	0.642	0.645	0.648	0.651	0.647
660.53	0.561	0.566	0.651	0.663	0.654	0.643	0.646	0.653	0.653	0.652
660.85	0.564	0.568	0.654	0.662	0.656	0.642	0.648	0.656	0.656	0.655
661.18	0.569	0.569	0.659	0.662	0.659	0.646	0.652	0.653	0.657	0.654
661.51	0.574	0.573	0.663	0.662	0.659	0.646	0.658	0.658	0.659	0.663
661.84	0.576	0.575	0.661	0.66	0.659	0.651	0.653	0.662	0.659	0.665
662.17	0.579	0.58	0.663	0.664	0.662	0.658	0.658	0.665	0.658	0.67
662.5	0.582	0.583	0.668	0.664	0.663	0.66	0.662	0.67	0.659	0.671
662.83	0.586	0.587	0.67	0.668	0.662	0.665	0.662	0.674	0.66	0.673
663.16	0.592	0.591	0.673	0.671	0.664	0.67	0.667	0.677	0.664	0.675
663.49	0.592	0.591	0.672	0.672	0.665	0.673	0.668	0.679	0.664	0.672
663.81	0.595	0.595	0.675	0.674	0.663	0.676	0.668	0.678	0.667	0.676
664.14	0.596	0.597	0.673	0.677	0.667	0.676	0.672	0.674	0.667	0.672
664.47	0.598	0.6	0.675	0.682	0.669	0.682	0.676	0.675	0.667	0.676
664.8	0.6	0.607	0.678	0.684	0.673	0.683	0.678	0.68	0.67	0.678
665.13	0.602	0.609	0.677	0.682	0.673	0.681	0.677	0.681	0.669	0.674
665.46	0.606	0.613	0.678	0.682	0.673	0.68	0.685	0.679	0.674	0.674
665.79	0.61	0.616	0.678	0.685	0.673	0.676	0.687	0.677	0.677	0.675
666.11	0.613	0.617	0.677	0.688	0.674	0.678	0.688	0.677	0.679	0.677
666.44	0.616	0.621	0.68	0.688	0.682	0.682	0.69	0.678	0.688	0.677
666.77	0.617	0.62	0.678	0.688	0.681	0.677	0.689	0.678	0.686	0.676
667.1	0.62	0.626	0.682	0.686	0.684	0.676	0.694	0.678	0.689	0.681
667.43	0.624	0.63	0.681	0.685	0.686	0.673	0.695	0.682	0.69	0.681
667.76	0.628	0.634	0.685	0.685	0.688	0.676	0.7	0.688	0.692	0.684
668.08	0.63	0.637	0.683	0.685	0.688	0.674	0.698	0.687	0.694	0.683
668.41	0.632	0.635	0.682	0.681	0.684	0.671	0.698	0.688	0.694	0.684
668.74	0.635	0.637	0.684	0.686	0.685	0.676	0.698	0.686	0.698	0.69
669.07	0.64	0.641	0.689	0.692	0.689	0.681	0.699	0.691	0.698	0.693
669.4	0.64	0.641	0.693	0.691	0.69	0.683	0.7	0.693	0.701	0.692
669.72	0.643	0.642	0.695	0.691	0.691	0.685	0.701	0.694	0.705	0.692
670.05	0.645	0.641	0.691	0.686	0.685	0.684	0.7	0.694	0.704	0.689
670.38	0.647	0.641	0.693	0.684	0.688	0.687	0.703	0.694	0.706	0.692
670.71	0.645	0.64	0.696	0.684	0.689	0.686	0.702	0.695	0.707	0.691
671.03	0.643	0.639	0.693	0.684	0.691	0.692	0.702	0.693	0.709	0.692
671.36	0.651	0.64	0.696	0.684	0.694	0.695	0.701	0.697	0.713	0.696
671.69	0.655	0.644	0.703	0.683	0.696	0.701	0.705	0.706	0.714	0.7
672.02	0.657	0.649	0.706	0.691	0.702	0.705	0.706	0.707	0.718	0.704
672.34	0.659	0.65	0.708	0.694	0.706	0.705	0.708	0.708	0.717	0.705

672.67	0.657	0.645	0.706	0.693	0.707	0.704	0.706	0.708	0.715	0.704
673	0.659	0.648	0.705	0.696	0.712	0.706	0.703	0.711	0.713	0.705
673.33	0.657	0.648	0.706	0.695	0.711	0.705	0.702	0.712	0.709	0.707
673.65	0.659	0.65	0.703	0.701	0.715	0.707	0.701	0.714	0.708	0.713
673.98	0.66	0.657	0.707	0.704	0.714	0.711	0.702	0.716	0.713	0.715
674.31	0.663	0.66	0.702	0.709	0.715	0.716	0.699	0.715	0.711	0.715
674.63	0.666	0.662	0.705	0.71	0.714	0.717	0.699	0.715	0.711	0.715
674.96	0.66	0.663	0.703	0.711	0.71	0.715	0.696	0.709	0.709	0.711
675.29	0.661	0.664	0.705	0.716	0.714	0.712	0.694	0.709	0.713	0.71
675.61	0.66	0.661	0.705	0.715	0.711	0.716	0.693	0.712	0.707	0.708
675.94	0.66	0.664	0.707	0.711	0.713	0.714	0.695	0.713	0.709	0.705
676.27	0.662	0.669	0.712	0.712	0.715	0.714	0.698	0.714	0.708	0.709
676.6	0.66	0.664	0.709	0.708	0.713	0.711	0.702	0.714	0.707	0.705
676.92	0.662	0.666	0.709	0.712	0.712	0.71	0.702	0.713	0.706	0.706
677.25	0.657	0.661	0.711	0.706	0.71	0.707	0.703	0.708	0.704	0.705
677.58	0.656	0.658	0.711	0.706	0.709	0.705	0.702	0.71	0.702	0.701
677.9	0.658	0.657	0.714	0.705	0.71	0.704	0.702	0.71	0.699	0.702
678.23	0.659	0.656	0.713	0.702	0.71	0.701	0.7	0.709	0.697	0.704
678.55	0.658	0.653	0.71	0.703	0.71	0.697	0.699	0.711	0.695	0.701
678.88	0.654	0.648	0.706	0.701	0.704	0.698	0.697	0.703	0.69	0.7
679.21	0.652	0.649	0.703	0.702	0.704	0.695	0.696	0.701	0.691	0.701
679.53	0.651	0.645	0.702	0.703	0.702	0.691	0.693	0.7	0.69	0.7
679.86	0.651	0.644	0.699	0.703	0.704	0.687	0.694	0.698	0.693	0.697
680.19	0.651	0.644	0.701	0.708	0.705	0.69	0.693	0.697	0.694	0.699
680.51	0.649	0.645	0.698	0.707	0.703	0.691	0.693	0.695	0.697	0.697
680.84	0.65	0.653	0.704	0.712	0.708	0.697	0.695	0.7	0.702	0.698
681.16	0.652	0.654	0.703	0.713	0.712	0.7	0.696	0.7	0.703	0.7
681.49	0.648	0.652	0.701	0.71	0.711	0.693	0.694	0.701	0.703	0.698
681.82	0.645	0.649	0.701	0.711	0.711	0.691	0.696	0.703	0.704	0.696
682.14	0.646	0.651	0.702	0.712	0.71	0.693	0.696	0.703	0.707	0.7
682.47	0.647	0.652	0.701	0.71	0.711	0.692	0.696	0.705	0.712	0.701
682.79	0.646	0.653	0.703	0.703	0.708	0.691	0.692	0.704	0.714	0.701
683.12	0.644	0.653	0.7	0.704	0.706	0.695	0.695	0.705	0.713	0.701
683.45	0.638	0.65	0.698	0.697	0.697	0.694	0.691	0.702	0.712	0.702
683.77	0.64	0.652	0.702	0.695	0.695	0.694	0.692	0.702	0.714	0.706
684.1	0.639	0.648	0.706	0.693	0.697	0.694	0.692	0.703	0.713	0.707
684.42	0.637	0.642	0.702	0.69	0.694	0.692	0.691	0.701	0.711	0.708
684.75	0.632	0.636	0.699	0.688	0.689	0.69	0.69	0.694	0.705	0.708
685.07	0.628	0.631	0.696	0.685	0.687	0.69	0.686	0.694	0.705	0.71

685.4	0.629	0.632	0.693	0.686	0.684	0.691	0.684	0.694	0.703	0.706
685.72	0.623	0.627	0.69	0.681	0.68	0.692	0.682	0.688	0.699	0.703
686.05	0.616	0.622	0.69	0.681	0.678	0.689	0.675	0.685	0.694	0.699
686.37	0.609	0.613	0.685	0.682	0.677	0.685	0.676	0.684	0.687	0.695
686.7	0.604	0.61	0.682	0.68	0.675	0.683	0.669	0.68	0.685	0.69
687.02	0.6	0.606	0.681	0.682	0.677	0.684	0.668	0.678	0.681	0.689
687.35	0.594	0.599	0.676	0.678	0.676	0.681	0.663	0.675	0.677	0.684
687.67	0.591	0.596	0.671	0.675	0.674	0.678	0.66	0.673	0.676	0.683
688	0.587	0.593	0.67	0.67	0.676	0.675	0.657	0.672	0.673	0.678
688.32	0.583	0.591	0.669	0.666	0.674	0.671	0.656	0.677	0.671	0.675
688.65	0.579	0.59	0.664	0.664	0.672	0.668	0.654	0.669	0.666	0.67
688.97	0.571	0.584	0.664	0.659	0.674	0.668	0.652	0.663	0.665	0.667
689.3	0.567	0.578	0.662	0.659	0.676	0.666	0.652	0.662	0.66	0.666
689.62	0.563	0.572	0.656	0.658	0.674	0.664	0.653	0.657	0.658	0.665
689.95	0.559	0.57	0.653	0.655	0.674	0.662	0.651	0.653	0.656	0.665
690.27	0.559	0.566	0.651	0.651	0.671	0.658	0.648	0.656	0.654	0.664
690.6	0.556	0.565	0.649	0.65	0.666	0.655	0.648	0.652	0.655	0.658
690.92	0.551	0.562	0.645	0.649	0.661	0.652	0.648	0.65	0.655	0.656
691.25	0.543	0.553	0.646	0.644	0.656	0.645	0.645	0.648	0.651	0.65
691.57	0.542	0.549	0.644	0.648	0.651	0.645	0.645	0.647	0.65	0.651
691.89	0.537	0.542	0.639	0.646	0.646	0.642	0.642	0.64	0.647	0.648
692.22	0.531	0.534	0.64	0.644	0.645	0.643	0.64	0.642	0.643	0.645
692.54	0.525	0.527	0.635	0.638	0.639	0.639	0.639	0.64	0.643	0.643
692.87	0.521	0.522	0.632	0.635	0.631	0.633	0.633	0.639	0.644	0.64
693.19	0.516	0.519	0.627	0.627	0.624	0.628	0.63	0.638	0.64	0.637
693.52	0.51	0.512	0.623	0.62	0.619	0.625	0.624	0.632	0.634	0.628
693.84	0.5	0.503	0.618	0.615	0.611	0.617	0.618	0.618	0.624	0.621
694.16	0.492	0.493	0.613	0.613	0.608	0.613	0.615	0.614	0.62	0.616
694.49	0.483	0.485	0.607	0.612	0.605	0.61	0.612	0.609	0.612	0.617
694.81	0.476	0.482	0.601	0.61	0.602	0.609	0.608	0.606	0.605	0.611
695.14	0.465	0.472	0.595	0.602	0.596	0.605	0.599	0.599	0.599	0.604
695.46	0.455	0.463	0.588	0.596	0.588	0.598	0.592	0.592	0.596	0.594
695.78	0.448	0.454	0.582	0.589	0.58	0.589	0.587	0.587	0.592	0.59
696.11	0.442	0.448	0.576	0.59	0.576	0.581	0.584	0.582	0.587	0.584
696.43	0.433	0.439	0.572	0.587	0.571	0.576	0.582	0.577	0.579	0.578
696.75	0.425	0.431	0.569	0.581	0.565	0.572	0.576	0.572	0.574	0.572
697.08	0.414	0.419	0.562	0.577	0.558	0.564	0.567	0.564	0.569	0.566
697.4	0.407	0.411	0.56	0.573	0.559	0.566	0.567	0.563	0.572	0.566
697.72	0.398	0.401	0.554	0.563	0.551	0.559	0.558	0.558	0.564	0.56

698.05	0.391	0.39	0.553	0.553	0.543	0.551	0.548	0.552	0.56	0.55
698.37	0.382	0.38	0.546	0.546	0.536	0.541	0.54	0.544	0.553	0.544
698.69	0.372	0.372	0.538	0.539	0.53	0.532	0.538	0.534	0.546	0.537
699.02	0.366	0.365	0.533	0.532	0.526	0.53	0.534	0.529	0.538	0.535
699.34	0.355	0.356	0.525	0.524	0.518	0.524	0.526	0.52	0.532	0.527
699.66	0.344	0.347	0.522	0.516	0.512	0.52	0.517	0.514	0.522	0.521
699.99	0.334	0.338	0.515	0.507	0.507	0.514	0.507	0.505	0.514	0.513
700.31	0.325	0.327	0.509	0.503	0.504	0.511	0.5	0.5	0.508	0.507

Absorbance values of Kelly Green A_F from 1-10 minutes for Part I of Phase III

λ	30 m	31 m	32 m	33 m	34 m	35 m	36 m	37 m	38 m	39 m
380.34	0.334	0.309	0.307	0.322	0.305	0.303	0.294	0.362	0.287	0.29
380.71	0.332	0.306	0.307	0.327	0.305	0.3	0.296	0.36	0.285	0.289
381.07	0.336	0.3	0.304	0.328	0.312	0.295	0.292	0.356	0.282	0.294
381.44	0.329	0.293	0.306	0.321	0.309	0.296	0.288	0.359	0.279	0.289
381.8	0.328	0.287	0.303	0.318	0.306	0.289	0.286	0.358	0.281	0.279
382.17	0.32	0.285	0.299	0.312	0.306	0.283	0.28	0.347	0.281	0.276
382.53	0.317	0.292	0.3	0.315	0.304	0.285	0.28	0.347	0.272	0.272
382.89	0.315	0.293	0.295	0.313	0.3	0.285	0.281	0.351	0.271	0.268
383.26	0.31	0.295	0.29	0.308	0.3	0.285	0.28	0.351	0.27	0.267
383.62	0.306	0.288	0.285	0.306	0.298	0.286	0.281	0.346	0.267	0.265
383.99	0.305	0.289	0.283	0.302	0.297	0.285	0.278	0.344	0.263	0.268
384.35	0.302	0.29	0.28	0.297	0.299	0.284	0.272	0.336	0.259	0.262
384.72	0.3	0.29	0.28	0.292	0.299	0.284	0.275	0.335	0.261	0.264
385.08	0.295	0.284	0.28	0.286	0.293	0.282	0.271	0.329	0.258	0.256
385.44	0.295	0.285	0.279	0.291	0.291	0.277	0.268	0.324	0.262	0.257
385.81	0.294	0.287	0.278	0.285	0.291	0.282	0.265	0.32	0.256	0.261
386.17	0.292	0.286	0.278	0.281	0.287	0.282	0.265	0.32	0.253	0.26
386.53	0.295	0.279	0.276	0.28	0.286	0.28	0.263	0.318	0.253	0.26
386.9	0.292	0.275	0.272	0.278	0.289	0.277	0.258	0.314	0.252	0.257
387.26	0.291	0.276	0.269	0.275	0.289	0.27	0.252	0.302	0.248	0.254
387.63	0.288	0.276	0.27	0.277	0.284	0.267	0.247	0.298	0.248	0.252
387.99	0.29	0.275	0.27	0.274	0.283	0.269	0.247	0.295	0.246	0.25
388.35	0.289	0.268	0.268	0.273	0.277	0.264	0.249	0.293	0.242	0.248
388.72	0.29	0.266	0.263	0.266	0.272	0.262	0.243	0.291	0.238	0.244
389.08	0.288	0.26	0.257	0.265	0.27	0.263	0.244	0.291	0.234	0.243
389.44	0.284	0.258	0.254	0.26	0.269	0.263	0.246	0.29	0.233	0.242

389.81	0.282	0.258	0.255	0.262	0.268	0.261	0.242	0.286	0.234	0.24
390.17	0.284	0.253	0.257	0.263	0.269	0.26	0.24	0.285	0.235	0.239
390.53	0.282	0.254	0.256	0.258	0.267	0.261	0.238	0.287	0.235	0.241
390.9	0.281	0.254	0.257	0.257	0.263	0.261	0.238	0.286	0.234	0.239
391.26	0.284	0.251	0.258	0.258	0.254	0.256	0.243	0.286	0.23	0.241
391.62	0.283	0.251	0.255	0.256	0.256	0.254	0.244	0.286	0.226	0.243
391.99	0.278	0.245	0.253	0.256	0.252	0.251	0.243	0.288	0.228	0.241
392.35	0.277	0.246	0.254	0.256	0.256	0.254	0.242	0.288	0.229	0.242
392.71	0.273	0.249	0.254	0.257	0.256	0.255	0.239	0.289	0.228	0.242
393.08	0.272	0.252	0.254	0.254	0.252	0.251	0.238	0.286	0.23	0.239
393.44	0.275	0.254	0.253	0.254	0.254	0.249	0.232	0.284	0.23	0.237
393.8	0.276	0.249	0.252	0.254	0.252	0.245	0.232	0.283	0.228	0.235
394.17	0.274	0.249	0.251	0.254	0.247	0.24	0.231	0.281	0.225	0.235
394.53	0.27	0.25	0.253	0.252	0.246	0.239	0.231	0.275	0.227	0.232
394.89	0.27	0.244	0.251	0.253	0.245	0.236	0.226	0.274	0.23	0.232
395.25	0.27	0.245	0.251	0.248	0.248	0.238	0.22	0.273	0.232	0.229
395.62	0.274	0.242	0.25	0.243	0.248	0.237	0.217	0.273	0.231	0.226
395.98	0.273	0.245	0.252	0.244	0.251	0.236	0.217	0.273	0.229	0.23
396.34	0.274	0.247	0.252	0.244	0.25	0.236	0.218	0.273	0.229	0.227
396.71	0.277	0.244	0.252	0.245	0.25	0.236	0.222	0.275	0.229	0.228
397.07	0.278	0.243	0.253	0.246	0.251	0.237	0.221	0.276	0.228	0.231
397.43	0.278	0.245	0.251	0.243	0.249	0.237	0.225	0.277	0.226	0.234
397.79	0.274	0.246	0.251	0.241	0.251	0.238	0.228	0.281	0.226	0.235
398.16	0.273	0.248	0.251	0.241	0.257	0.238	0.228	0.283	0.229	0.235
398.52	0.275	0.248	0.25	0.242	0.258	0.236	0.226	0.284	0.227	0.234
398.88	0.277	0.253	0.25	0.241	0.258	0.238	0.226	0.284	0.225	0.232
399.24	0.277	0.251	0.247	0.241	0.259	0.238	0.229	0.29	0.227	0.235
399.61	0.276	0.253	0.249	0.243	0.259	0.24	0.233	0.294	0.227	0.238
399.97	0.276	0.25	0.247	0.241	0.255	0.241	0.233	0.293	0.226	0.237
400.33	0.277	0.251	0.247	0.241	0.252	0.241	0.229	0.291	0.225	0.239
400.69	0.276	0.252	0.246	0.24	0.25	0.239	0.225	0.288	0.223	0.236
401.06	0.279	0.254	0.248	0.239	0.251	0.24	0.224	0.286	0.221	0.236
401.42	0.278	0.252	0.252	0.241	0.249	0.241	0.223	0.286	0.222	0.235
401.78	0.28	0.251	0.251	0.24	0.246	0.241	0.218	0.285	0.223	0.237
402.14	0.281	0.25	0.249	0.242	0.243	0.243	0.219	0.284	0.221	0.237
402.5	0.28	0.246	0.246	0.242	0.243	0.242	0.218	0.285	0.219	0.239
402.87	0.279	0.245	0.245	0.241	0.244	0.241	0.219	0.286	0.216	0.24
403.23	0.276	0.249	0.248	0.245	0.246	0.245	0.221	0.285	0.214	0.242
403.59	0.276	0.25	0.251	0.244	0.247	0.243	0.22	0.285	0.215	0.236

403.95	0.279	0.252	0.254	0.244	0.251	0.241	0.22	0.285	0.212	0.233
404.31	0.277	0.249	0.255	0.248	0.256	0.243	0.222	0.288	0.212	0.23
404.68	0.275	0.25	0.257	0.245	0.257	0.245	0.222	0.29	0.212	0.231
405.04	0.275	0.252	0.257	0.247	0.259	0.247	0.223	0.29	0.214	0.23
405.4	0.274	0.253	0.255	0.248	0.263	0.245	0.223	0.292	0.214	0.229
405.76	0.276	0.254	0.259	0.252	0.264	0.245	0.222	0.293	0.214	0.229
406.12	0.277	0.254	0.262	0.252	0.265	0.247	0.221	0.294	0.213	0.226
406.49	0.279	0.255	0.264	0.251	0.266	0.25	0.225	0.295	0.214	0.226
406.85	0.279	0.256	0.264	0.254	0.266	0.25	0.224	0.292	0.212	0.228
407.21	0.282	0.255	0.26	0.25	0.262	0.25	0.223	0.293	0.211	0.225
407.57	0.283	0.255	0.259	0.25	0.265	0.252	0.222	0.293	0.213	0.229
407.93	0.281	0.256	0.257	0.251	0.261	0.254	0.222	0.294	0.214	0.227
408.29	0.281	0.257	0.255	0.249	0.26	0.252	0.219	0.294	0.214	0.229
408.65	0.284	0.254	0.253	0.253	0.261	0.253	0.22	0.293	0.217	0.229
409.02	0.283	0.251	0.249	0.252	0.259	0.25	0.221	0.295	0.217	0.229
409.38	0.282	0.249	0.25	0.252	0.258	0.252	0.224	0.293	0.215	0.231
409.74	0.282	0.248	0.248	0.252	0.259	0.256	0.229	0.295	0.215	0.231
410.1	0.283	0.248	0.247	0.252	0.259	0.255	0.232	0.295	0.216	0.23
410.46	0.28	0.248	0.247	0.255	0.26	0.254	0.23	0.295	0.217	0.231
410.82	0.28	0.248	0.246	0.254	0.26	0.255	0.232	0.297	0.22	0.23
411.18	0.279	0.247	0.25	0.255	0.262	0.255	0.232	0.298	0.222	0.233
411.54	0.279	0.245	0.248	0.256	0.26	0.251	0.231	0.298	0.221	0.234
411.91	0.28	0.244	0.247	0.256	0.262	0.249	0.23	0.295	0.222	0.237
412.27	0.279	0.244	0.247	0.256	0.26	0.249	0.234	0.294	0.222	0.238
412.63	0.28	0.247	0.246	0.254	0.259	0.248	0.233	0.293	0.219	0.236
412.99	0.282	0.25	0.248	0.255	0.259	0.251	0.233	0.296	0.219	0.239
413.35	0.283	0.25	0.246	0.253	0.259	0.251	0.23	0.296	0.219	0.236
413.71	0.282	0.251	0.245	0.253	0.259	0.249	0.229	0.296	0.218	0.235
414.07	0.281	0.256	0.245	0.255	0.258	0.249	0.227	0.296	0.219	0.238
414.43	0.282	0.254	0.243	0.254	0.256	0.25	0.228	0.294	0.218	0.237
414.79	0.284	0.254	0.244	0.254	0.258	0.25	0.226	0.296	0.219	0.235
415.15	0.284	0.254	0.244	0.257	0.259	0.248	0.227	0.299	0.22	0.235
415.51	0.286	0.255	0.245	0.257	0.261	0.251	0.229	0.299	0.222	0.235
415.88	0.284	0.255	0.248	0.257	0.261	0.253	0.232	0.301	0.22	0.232
416.24	0.285	0.255	0.249	0.255	0.262	0.254	0.23	0.304	0.22	0.232
416.6	0.285	0.255	0.25	0.255	0.262	0.257	0.232	0.306	0.223	0.236
416.96	0.282	0.253	0.249	0.256	0.264	0.255	0.232	0.305	0.224	0.236
417.32	0.283	0.252	0.251	0.259	0.264	0.254	0.234	0.307	0.225	0.239
417.68	0.285	0.253	0.25	0.257	0.265	0.255	0.233	0.309	0.228	0.241

418.04	0.284	0.25	0.249	0.256	0.264	0.256	0.233	0.308	0.228	0.24
418.4	0.284	0.252	0.251	0.253	0.264	0.256	0.233	0.311	0.227	0.24
418.76	0.285	0.25	0.251	0.254	0.264	0.255	0.233	0.309	0.224	0.241
419.12	0.283	0.25	0.249	0.252	0.262	0.255	0.232	0.304	0.221	0.239
419.48	0.282	0.25	0.248	0.252	0.259	0.254	0.23	0.302	0.22	0.24
419.84	0.285	0.25	0.247	0.254	0.258	0.254	0.23	0.302	0.221	0.243
420.2	0.286	0.248	0.244	0.258	0.258	0.254	0.231	0.3	0.219	0.243
420.56	0.286	0.248	0.244	0.26	0.259	0.252	0.232	0.301	0.221	0.241
420.92	0.288	0.25	0.246	0.261	0.258	0.253	0.234	0.299	0.221	0.241
421.28	0.284	0.252	0.245	0.261	0.259	0.252	0.233	0.299	0.221	0.241
421.64	0.283	0.252	0.247	0.263	0.259	0.252	0.234	0.298	0.22	0.242
422	0.285	0.255	0.247	0.264	0.263	0.254	0.237	0.299	0.221	0.243
422.36	0.285	0.255	0.247	0.265	0.265	0.253	0.238	0.299	0.223	0.244
422.72	0.284	0.255	0.246	0.267	0.265	0.255	0.238	0.3	0.225	0.245
423.08	0.286	0.257	0.248	0.268	0.267	0.256	0.238	0.303	0.226	0.249
423.44	0.284	0.258	0.249	0.268	0.266	0.254	0.24	0.305	0.226	0.249
423.8	0.286	0.258	0.248	0.268	0.267	0.255	0.24	0.306	0.225	0.248
424.16	0.285	0.261	0.251	0.267	0.266	0.256	0.239	0.306	0.228	0.248
424.52	0.284	0.265	0.251	0.268	0.267	0.255	0.24	0.307	0.229	0.249
424.88	0.286	0.265	0.249	0.268	0.268	0.254	0.238	0.308	0.228	0.25
425.24	0.288	0.263	0.248	0.268	0.266	0.254	0.239	0.305	0.227	0.247
425.6	0.289	0.259	0.248	0.269	0.266	0.253	0.238	0.302	0.227	0.244
425.96	0.287	0.256	0.248	0.269	0.265	0.253	0.236	0.303	0.229	0.245
426.32	0.289	0.257	0.249	0.271	0.264	0.253	0.237	0.302	0.228	0.246
426.68	0.292	0.256	0.252	0.27	0.263	0.25	0.239	0.303	0.23	0.247
427.04	0.294	0.255	0.253	0.269	0.26	0.249	0.24	0.301	0.231	0.247
427.4	0.296	0.255	0.253	0.271	0.264	0.252	0.239	0.3	0.232	0.246
427.76	0.294	0.255	0.254	0.27	0.263	0.25	0.236	0.299	0.232	0.247
428.12	0.294	0.253	0.253	0.271	0.264	0.248	0.236	0.298	0.23	0.247
428.47	0.294	0.25	0.253	0.271	0.261	0.25	0.233	0.297	0.228	0.245
428.83	0.294	0.247	0.253	0.27	0.26	0.249	0.234	0.298	0.229	0.243
429.19	0.295	0.247	0.253	0.268	0.261	0.25	0.234	0.299	0.232	0.244
429.55	0.296	0.25	0.254	0.268	0.262	0.251	0.236	0.302	0.234	0.245
429.91	0.298	0.252	0.254	0.267	0.263	0.249	0.234	0.3	0.232	0.245
430.27	0.297	0.25	0.254	0.268	0.261	0.249	0.234	0.301	0.233	0.243
430.63	0.297	0.249	0.253	0.267	0.26	0.251	0.231	0.297	0.229	0.242
430.99	0.296	0.248	0.25	0.268	0.26	0.252	0.232	0.298	0.229	0.24
431.35	0.293	0.248	0.25	0.266	0.258	0.252	0.232	0.298	0.228	0.239
431.71	0.292	0.249	0.249	0.266	0.258	0.253	0.233	0.299	0.231	0.238

432.07	0.291	0.248	0.249	0.264	0.257	0.255	0.233	0.299	0.233	0.238
432.42	0.29	0.25	0.248	0.264	0.258	0.255	0.234	0.299	0.232	0.239
432.78	0.29	0.252	0.247	0.264	0.257	0.258	0.235	0.298	0.233	0.241
433.14	0.287	0.254	0.248	0.265	0.255	0.259	0.235	0.298	0.23	0.24
433.5	0.286	0.253	0.247	0.265	0.254	0.257	0.234	0.295	0.229	0.24
433.86	0.284	0.252	0.247	0.265	0.252	0.259	0.235	0.296	0.228	0.242
434.22	0.283	0.253	0.245	0.263	0.251	0.259	0.233	0.295	0.228	0.242
434.58	0.28	0.253	0.244	0.26	0.252	0.258	0.235	0.296	0.23	0.242
434.94	0.279	0.252	0.244	0.259	0.252	0.259	0.233	0.295	0.23	0.241
435.29	0.278	0.251	0.243	0.258	0.252	0.258	0.233	0.295	0.229	0.241
435.65	0.279	0.25	0.244	0.257	0.251	0.256	0.233	0.294	0.227	0.24
436.01	0.278	0.251	0.245	0.257	0.251	0.254	0.233	0.293	0.227	0.239
436.37	0.278	0.25	0.246	0.255	0.252	0.253	0.231	0.291	0.227	0.236
436.73	0.276	0.248	0.247	0.255	0.252	0.252	0.229	0.289	0.226	0.236
437.09	0.275	0.245	0.247	0.254	0.252	0.25	0.225	0.287	0.226	0.235
437.44	0.275	0.246	0.247	0.254	0.252	0.251	0.225	0.288	0.227	0.234
437.8	0.274	0.244	0.248	0.252	0.25	0.249	0.223	0.287	0.228	0.232
438.16	0.273	0.244	0.249	0.253	0.251	0.25	0.224	0.287	0.229	0.23
438.52	0.272	0.245	0.25	0.255	0.252	0.252	0.222	0.284	0.228	0.229
438.88	0.272	0.246	0.252	0.254	0.253	0.251	0.222	0.285	0.229	0.23
439.24	0.272	0.245	0.252	0.253	0.253	0.249	0.22	0.285	0.23	0.232
439.59	0.271	0.245	0.253	0.256	0.253	0.25	0.22	0.286	0.231	0.233
439.95	0.27	0.245	0.252	0.256	0.253	0.249	0.219	0.286	0.228	0.233
440.31	0.269	0.244	0.251	0.255	0.252	0.247	0.221	0.286	0.227	0.235
440.67	0.27	0.242	0.25	0.253	0.253	0.247	0.224	0.286	0.227	0.234
441.03	0.269	0.243	0.251	0.251	0.253	0.247	0.225	0.287	0.227	0.234
441.38	0.27	0.242	0.252	0.252	0.252	0.248	0.224	0.286	0.227	0.235
441.74	0.269	0.242	0.25	0.252	0.253	0.248	0.224	0.286	0.226	0.233
442.1	0.268	0.241	0.25	0.251	0.251	0.246	0.224	0.285	0.224	0.235
442.46	0.266	0.24	0.248	0.251	0.251	0.243	0.223	0.286	0.223	0.234
442.81	0.264	0.24	0.246	0.251	0.249	0.242	0.222	0.285	0.222	0.233
443.17	0.262	0.24	0.247	0.253	0.248	0.243	0.222	0.282	0.22	0.232
443.53	0.26	0.239	0.245	0.251	0.248	0.243	0.22	0.28	0.22	0.232
443.89	0.26	0.238	0.244	0.25	0.247	0.242	0.219	0.28	0.221	0.231
444.24	0.258	0.238	0.243	0.249	0.248	0.244	0.218	0.279	0.221	0.229
444.6	0.258	0.239	0.243	0.25	0.246	0.243	0.217	0.279	0.222	0.229
444.96	0.257	0.238	0.242	0.25	0.244	0.241	0.217	0.277	0.221	0.228
445.32	0.255	0.238	0.241	0.248	0.245	0.239	0.216	0.277	0.22	0.227
445.67	0.257	0.238	0.241	0.245	0.243	0.239	0.216	0.277	0.219	0.228

446.03	0.256	0.237	0.239	0.245	0.242	0.238	0.214	0.276	0.22	0.227
446.39	0.258	0.238	0.239	0.242	0.241	0.239	0.213	0.277	0.22	0.226
446.75	0.257	0.236	0.239	0.241	0.241	0.239	0.212	0.276	0.219	0.225
447.1	0.257	0.236	0.239	0.239	0.242	0.235	0.213	0.276	0.22	0.225
447.46	0.258	0.236	0.238	0.238	0.24	0.235	0.213	0.275	0.219	0.225
447.82	0.256	0.235	0.239	0.237	0.24	0.235	0.212	0.274	0.219	0.224
448.18	0.256	0.233	0.238	0.237	0.238	0.234	0.21	0.274	0.219	0.224
448.53	0.256	0.232	0.238	0.237	0.238	0.233	0.209	0.274	0.218	0.222
448.89	0.255	0.232	0.238	0.236	0.239	0.234	0.208	0.276	0.217	0.22
449.25	0.255	0.23	0.238	0.234	0.238	0.235	0.206	0.274	0.217	0.219
449.6	0.252	0.228	0.237	0.234	0.237	0.234	0.204	0.274	0.215	0.218
449.96	0.251	0.226	0.238	0.233	0.238	0.232	0.203	0.273	0.213	0.217
450.32	0.248	0.223	0.237	0.233	0.237	0.231	0.202	0.272	0.213	0.217
450.67	0.25	0.223	0.238	0.232	0.236	0.231	0.202	0.272	0.213	0.217
451.03	0.247	0.223	0.236	0.23	0.235	0.231	0.202	0.271	0.213	0.215
451.39	0.246	0.221	0.234	0.229	0.233	0.228	0.2	0.271	0.211	0.214
451.74	0.247	0.221	0.233	0.228	0.232	0.227	0.199	0.27	0.211	0.213
452.1	0.246	0.22	0.233	0.226	0.23	0.226	0.198	0.269	0.21	0.211
452.46	0.246	0.218	0.231	0.226	0.229	0.225	0.196	0.266	0.208	0.211
452.81	0.245	0.217	0.229	0.225	0.228	0.222	0.194	0.264	0.207	0.209
453.17	0.245	0.215	0.226	0.225	0.227	0.22	0.194	0.262	0.207	0.209
453.53	0.244	0.214	0.225	0.225	0.226	0.219	0.194	0.261	0.209	0.208
453.88	0.242	0.214	0.223	0.223	0.225	0.219	0.195	0.261	0.21	0.209
454.24	0.241	0.214	0.223	0.223	0.223	0.217	0.196	0.26	0.209	0.207
454.6	0.239	0.21	0.221	0.222	0.222	0.216	0.193	0.259	0.208	0.207
454.95	0.238	0.208	0.22	0.222	0.221	0.216	0.192	0.257	0.209	0.205
455.31	0.237	0.208	0.221	0.22	0.221	0.215	0.19	0.255	0.208	0.204
455.66	0.236	0.207	0.22	0.219	0.221	0.213	0.19	0.254	0.207	0.203
456.02	0.234	0.206	0.219	0.219	0.221	0.212	0.19	0.254	0.208	0.203
456.38	0.232	0.206	0.218	0.218	0.219	0.212	0.19	0.255	0.209	0.2
456.73	0.23	0.205	0.218	0.216	0.219	0.212	0.19	0.254	0.208	0.199
457.09	0.229	0.204	0.218	0.215	0.219	0.211	0.189	0.254	0.207	0.197
457.45	0.227	0.204	0.216	0.214	0.218	0.21	0.188	0.254	0.206	0.196
457.8	0.226	0.203	0.216	0.213	0.217	0.209	0.186	0.253	0.203	0.194
458.16	0.227	0.201	0.214	0.211	0.216	0.208	0.186	0.253	0.202	0.193
458.51	0.226	0.2	0.213	0.21	0.215	0.208	0.184	0.251	0.202	0.191
458.87	0.224	0.197	0.211	0.208	0.214	0.207	0.184	0.252	0.2	0.19
459.23	0.222	0.194	0.209	0.209	0.212	0.207	0.183	0.253	0.2	0.19
459.58	0.221	0.193	0.207	0.206	0.212	0.208	0.183	0.252	0.2	0.188

459.94	0.22	0.191	0.205	0.205	0.21	0.208	0.182	0.25	0.197	0.185
460.29	0.219	0.189	0.204	0.203	0.209	0.207	0.18	0.248	0.196	0.185
460.65	0.218	0.188	0.201	0.202	0.208	0.205	0.178	0.247	0.196	0.185
461	0.217	0.187	0.2	0.203	0.206	0.204	0.175	0.247	0.195	0.185
461.36	0.217	0.185	0.198	0.202	0.206	0.204	0.173	0.245	0.194	0.183
461.71	0.215	0.183	0.199	0.2	0.205	0.203	0.172	0.243	0.193	0.181
462.07	0.214	0.182	0.198	0.2	0.204	0.202	0.17	0.241	0.193	0.181
462.43	0.213	0.181	0.198	0.199	0.204	0.2	0.17	0.24	0.19	0.181
462.78	0.212	0.181	0.196	0.198	0.203	0.199	0.168	0.238	0.187	0.181
463.14	0.212	0.179	0.195	0.198	0.201	0.198	0.166	0.236	0.187	0.179
463.49	0.21	0.176	0.196	0.197	0.199	0.198	0.165	0.235	0.185	0.179
463.85	0.208	0.175	0.195	0.197	0.199	0.197	0.165	0.235	0.184	0.18
464.2	0.206	0.175	0.193	0.196	0.198	0.195	0.164	0.234	0.183	0.18
464.56	0.206	0.173	0.192	0.195	0.197	0.195	0.163	0.233	0.182	0.178
464.91	0.204	0.171	0.191	0.193	0.196	0.194	0.164	0.231	0.18	0.177
465.27	0.201	0.17	0.189	0.192	0.196	0.194	0.164	0.23	0.178	0.176
465.62	0.2	0.168	0.187	0.191	0.195	0.193	0.163	0.23	0.177	0.175
465.98	0.198	0.167	0.186	0.189	0.194	0.193	0.161	0.228	0.175	0.174
466.33	0.196	0.167	0.185	0.188	0.193	0.192	0.16	0.228	0.175	0.172
466.69	0.195	0.165	0.185	0.187	0.192	0.191	0.159	0.228	0.174	0.172
467.04	0.194	0.164	0.184	0.186	0.193	0.19	0.158	0.228	0.173	0.17
467.4	0.193	0.163	0.183	0.184	0.192	0.188	0.156	0.227	0.172	0.169
467.75	0.192	0.161	0.182	0.183	0.191	0.187	0.154	0.226	0.17	0.168
468.11	0.192	0.16	0.181	0.182	0.189	0.186	0.154	0.226	0.169	0.167
468.46	0.19	0.158	0.181	0.18	0.187	0.185	0.153	0.226	0.167	0.166
468.82	0.19	0.155	0.18	0.179	0.186	0.184	0.151	0.226	0.165	0.165
469.17	0.189	0.153	0.179	0.178	0.184	0.182	0.15	0.225	0.164	0.164
469.53	0.189	0.152	0.178	0.177	0.183	0.18	0.149	0.226	0.163	0.164
469.88	0.189	0.15	0.176	0.177	0.182	0.179	0.148	0.226	0.162	0.162
470.24	0.187	0.149	0.175	0.175	0.181	0.179	0.147	0.226	0.16	0.161
470.59	0.186	0.146	0.174	0.174	0.179	0.179	0.146	0.225	0.158	0.159
470.94	0.185	0.145	0.173	0.173	0.179	0.178	0.145	0.224	0.156	0.159
471.3	0.184	0.144	0.172	0.173	0.178	0.178	0.145	0.223	0.155	0.157
471.65	0.182	0.143	0.171	0.171	0.178	0.177	0.144	0.223	0.154	0.156
472.01	0.18	0.141	0.17	0.171	0.177	0.175	0.142	0.222	0.153	0.155
472.36	0.18	0.14	0.169	0.171	0.177	0.174	0.14	0.221	0.152	0.155
472.72	0.178	0.14	0.169	0.171	0.177	0.173	0.139	0.22	0.152	0.154
473.07	0.178	0.138	0.168	0.17	0.176	0.173	0.138	0.22	0.15	0.153
473.43	0.176	0.136	0.168	0.169	0.175	0.172	0.138	0.219	0.149	0.152

473.78	0.175	0.135	0.168	0.168	0.174	0.171	0.137	0.217	0.148	0.151
474.13	0.174	0.133	0.168	0.168	0.173	0.169	0.135	0.216	0.146	0.151
474.49	0.172	0.132	0.167	0.167	0.173	0.169	0.134	0.215	0.145	0.149
474.84	0.171	0.131	0.165	0.165	0.173	0.167	0.134	0.214	0.144	0.147
475.2	0.17	0.129	0.164	0.164	0.171	0.166	0.132	0.212	0.142	0.146
475.55	0.168	0.127	0.164	0.163	0.17	0.166	0.131	0.211	0.14	0.145
475.9	0.168	0.125	0.163	0.162	0.17	0.166	0.131	0.21	0.137	0.144
476.26	0.166	0.125	0.162	0.161	0.169	0.165	0.132	0.21	0.135	0.142
476.61	0.165	0.123	0.162	0.16	0.167	0.165	0.131	0.21	0.133	0.141
476.96	0.164	0.123	0.161	0.16	0.166	0.164	0.129	0.209	0.132	0.14
477.32	0.161	0.121	0.159	0.159	0.165	0.164	0.127	0.207	0.13	0.139
477.67	0.16	0.12	0.158	0.158	0.164	0.164	0.126	0.206	0.129	0.138
478.03	0.158	0.118	0.157	0.158	0.163	0.163	0.126	0.206	0.128	0.137
478.38	0.157	0.117	0.156	0.156	0.161	0.162	0.124	0.204	0.126	0.137
478.73	0.157	0.115	0.156	0.156	0.16	0.162	0.124	0.203	0.127	0.136
479.09	0.157	0.114	0.155	0.156	0.16	0.161	0.123	0.203	0.126	0.136
479.44	0.156	0.114	0.154	0.156	0.16	0.16	0.122	0.202	0.125	0.136
479.79	0.155	0.114	0.154	0.154	0.159	0.16	0.121	0.202	0.125	0.134
480.15	0.154	0.112	0.153	0.154	0.159	0.159	0.12	0.2	0.124	0.133
480.5	0.153	0.111	0.151	0.152	0.158	0.158	0.119	0.199	0.123	0.132
480.85	0.152	0.11	0.15	0.151	0.157	0.156	0.118	0.199	0.122	0.13
481.21	0.152	0.109	0.149	0.15	0.157	0.156	0.118	0.198	0.121	0.13
481.56	0.151	0.109	0.148	0.149	0.156	0.155	0.117	0.196	0.12	0.13
481.91	0.151	0.108	0.148	0.148	0.157	0.154	0.116	0.197	0.12	0.13
482.27	0.15	0.107	0.148	0.147	0.156	0.154	0.116	0.195	0.119	0.13
482.62	0.149	0.107	0.147	0.146	0.156	0.152	0.115	0.195	0.117	0.129
482.97	0.147	0.106	0.146	0.145	0.155	0.151	0.115	0.194	0.117	0.128
483.33	0.146	0.105	0.145	0.144	0.153	0.149	0.115	0.193	0.116	0.127
483.68	0.145	0.104	0.144	0.143	0.152	0.148	0.114	0.193	0.114	0.127
484.03	0.143	0.103	0.144	0.142	0.15	0.148	0.113	0.192	0.113	0.127
484.38	0.142	0.102	0.144	0.141	0.15	0.148	0.113	0.191	0.113	0.126
484.74	0.141	0.102	0.143	0.142	0.15	0.146	0.112	0.19	0.113	0.126
485.09	0.139	0.101	0.143	0.14	0.15	0.145	0.11	0.188	0.112	0.124
485.44	0.138	0.099	0.142	0.14	0.148	0.145	0.11	0.188	0.112	0.123
485.8	0.136	0.097	0.14	0.138	0.146	0.144	0.109	0.186	0.111	0.122
486.15	0.135	0.096	0.139	0.138	0.145	0.142	0.109	0.185	0.111	0.121
486.5	0.135	0.095	0.139	0.137	0.144	0.142	0.108	0.185	0.112	0.119
486.85	0.134	0.093	0.139	0.136	0.143	0.142	0.107	0.184	0.111	0.119
487.21	0.133	0.092	0.137	0.135	0.143	0.142	0.106	0.183	0.11	0.118

487.56	0.132	0.091	0.136	0.136	0.142	0.142	0.104	0.182	0.111	0.118
487.91	0.131	0.09	0.135	0.135	0.141	0.141	0.104	0.181	0.111	0.117
488.26	0.13	0.089	0.134	0.134	0.141	0.14	0.103	0.179	0.109	0.117
488.62	0.13	0.089	0.133	0.133	0.139	0.14	0.102	0.179	0.108	0.116
488.97	0.13	0.087	0.131	0.134	0.138	0.139	0.103	0.178	0.108	0.116
489.32	0.131	0.087	0.13	0.133	0.137	0.138	0.103	0.178	0.107	0.115
489.67	0.13	0.086	0.13	0.133	0.137	0.137	0.102	0.177	0.106	0.115
490.02	0.13	0.085	0.129	0.132	0.136	0.137	0.102	0.177	0.106	0.115
490.38	0.128	0.084	0.128	0.131	0.135	0.136	0.101	0.176	0.104	0.115
490.73	0.127	0.083	0.128	0.132	0.134	0.134	0.1	0.175	0.104	0.114
491.08	0.127	0.083	0.128	0.131	0.134	0.134	0.1	0.174	0.104	0.113
491.43	0.126	0.083	0.127	0.13	0.133	0.133	0.1	0.173	0.103	0.112
491.79	0.126	0.083	0.127	0.13	0.133	0.132	0.099	0.173	0.104	0.111
492.14	0.126	0.082	0.126	0.129	0.132	0.132	0.099	0.173	0.103	0.111
492.49	0.125	0.081	0.127	0.128	0.132	0.131	0.098	0.172	0.103	0.111
492.84	0.125	0.081	0.126	0.128	0.131	0.131	0.098	0.172	0.103	0.111
493.19	0.123	0.08	0.126	0.128	0.131	0.131	0.097	0.172	0.103	0.11
493.54	0.123	0.079	0.125	0.127	0.13	0.13	0.097	0.17	0.103	0.11
493.9	0.122	0.079	0.125	0.126	0.13	0.128	0.096	0.17	0.102	0.109
494.25	0.121	0.079	0.124	0.127	0.129	0.128	0.095	0.17	0.103	0.11
494.6	0.121	0.078	0.123	0.126	0.129	0.128	0.095	0.17	0.103	0.11
494.95	0.12	0.078	0.123	0.125	0.128	0.127	0.094	0.168	0.104	0.109
495.3	0.12	0.077	0.123	0.124	0.128	0.127	0.094	0.168	0.103	0.109
495.65	0.119	0.076	0.122	0.124	0.128	0.125	0.094	0.167	0.102	0.109
496.01	0.118	0.075	0.122	0.123	0.127	0.124	0.092	0.166	0.102	0.109
496.36	0.117	0.074	0.121	0.122	0.127	0.123	0.091	0.164	0.102	0.109
496.71	0.116	0.074	0.121	0.121	0.126	0.123	0.089	0.164	0.101	0.108
497.06	0.116	0.074	0.12	0.121	0.127	0.122	0.089	0.164	0.101	0.108
497.41	0.116	0.075	0.12	0.12	0.127	0.122	0.088	0.163	0.101	0.107
497.76	0.116	0.074	0.121	0.119	0.127	0.122	0.088	0.163	0.101	0.106
498.11	0.115	0.075	0.12	0.12	0.127	0.121	0.088	0.161	0.101	0.105
498.47	0.115	0.074	0.12	0.119	0.127	0.121	0.087	0.16	0.1	0.104
498.82	0.114	0.074	0.119	0.119	0.126	0.121	0.087	0.161	0.1	0.106
499.17	0.113	0.073	0.119	0.119	0.126	0.12	0.086	0.16	0.1	0.106
499.52	0.112	0.073	0.117	0.118	0.126	0.122	0.086	0.16	0.101	0.105
499.87	0.112	0.073	0.118	0.117	0.126	0.122	0.086	0.161	0.1	0.104
500.22	0.112	0.073	0.118	0.118	0.125	0.122	0.086	0.161	0.101	0.104
500.57	0.111	0.072	0.118	0.118	0.124	0.121	0.086	0.16	0.101	0.105
500.92	0.109	0.072	0.118	0.117	0.124	0.121	0.086	0.159	0.102	0.105

501.27	0.108	0.071	0.117	0.118	0.125	0.12	0.086	0.158	0.102	0.105
501.62	0.108	0.071	0.117	0.117	0.124	0.12	0.086	0.158	0.102	0.105
501.97	0.107	0.07	0.117	0.117	0.123	0.12	0.086	0.158	0.101	0.105
502.33	0.106	0.069	0.117	0.116	0.122	0.12	0.086	0.158	0.102	0.105
502.68	0.106	0.069	0.116	0.116	0.121	0.12	0.085	0.158	0.103	0.104
503.03	0.106	0.07	0.117	0.116	0.121	0.12	0.085	0.158	0.103	0.103
503.38	0.105	0.069	0.118	0.115	0.121	0.119	0.085	0.157	0.103	0.103
503.73	0.104	0.069	0.117	0.114	0.12	0.119	0.085	0.157	0.103	0.104
504.08	0.103	0.07	0.117	0.114	0.121	0.119	0.084	0.157	0.103	0.104
504.43	0.102	0.07	0.116	0.113	0.122	0.12	0.084	0.156	0.104	0.103
504.78	0.101	0.07	0.117	0.113	0.122	0.121	0.083	0.156	0.104	0.104
505.13	0.102	0.07	0.117	0.112	0.121	0.121	0.083	0.156	0.104	0.105
505.48	0.101	0.069	0.117	0.112	0.122	0.122	0.082	0.156	0.104	0.106
505.83	0.1	0.07	0.117	0.111	0.122	0.122	0.081	0.156	0.104	0.106
506.18	0.1	0.071	0.117	0.11	0.123	0.121	0.081	0.156	0.104	0.106
506.53	0.098	0.07	0.117	0.11	0.123	0.121	0.081	0.155	0.104	0.107
506.88	0.098	0.07	0.117	0.11	0.123	0.12	0.08	0.155	0.103	0.107
507.23	0.097	0.07	0.118	0.109	0.122	0.119	0.079	0.155	0.103	0.107
507.58	0.098	0.07	0.118	0.109	0.123	0.119	0.079	0.154	0.103	0.107
507.93	0.098	0.069	0.119	0.109	0.123	0.119	0.08	0.153	0.104	0.107
508.28	0.098	0.069	0.119	0.11	0.124	0.119	0.08	0.154	0.103	0.107
508.63	0.098	0.069	0.119	0.11	0.123	0.118	0.08	0.154	0.103	0.105
508.98	0.097	0.069	0.119	0.11	0.123	0.118	0.08	0.155	0.103	0.105
509.33	0.097	0.069	0.119	0.111	0.122	0.118	0.08	0.154	0.103	0.105
509.68	0.098	0.068	0.118	0.111	0.122	0.118	0.08	0.153	0.104	0.105
510.03	0.098	0.068	0.119	0.111	0.122	0.118	0.08	0.153	0.103	0.106
510.38	0.098	0.068	0.119	0.112	0.122	0.119	0.08	0.152	0.103	0.106
510.73	0.098	0.068	0.12	0.112	0.122	0.12	0.08	0.152	0.103	0.106
511.08	0.098	0.068	0.12	0.114	0.123	0.121	0.081	0.151	0.103	0.107
511.43	0.097	0.069	0.119	0.113	0.123	0.121	0.081	0.151	0.102	0.108
511.78	0.098	0.069	0.119	0.114	0.122	0.121	0.081	0.152	0.101	0.109
512.13	0.097	0.069	0.12	0.113	0.121	0.12	0.081	0.152	0.103	0.109
512.48	0.097	0.069	0.12	0.114	0.121	0.121	0.081	0.152	0.103	0.11
512.83	0.097	0.069	0.12	0.114	0.121	0.121	0.081	0.151	0.103	0.109
513.18	0.097	0.069	0.12	0.114	0.122	0.121	0.081	0.151	0.103	0.109
513.53	0.096	0.069	0.121	0.114	0.122	0.121	0.081	0.152	0.104	0.11
513.88	0.095	0.07	0.121	0.115	0.122	0.122	0.082	0.152	0.105	0.11
514.22	0.095	0.07	0.121	0.115	0.122	0.122	0.082	0.152	0.106	0.111
514.57	0.095	0.071	0.12	0.116	0.123	0.122	0.082	0.153	0.107	0.111

514.92	0.096	0.072	0.12	0.116	0.123	0.122	0.082	0.153	0.107	0.111
515.27	0.096	0.073	0.121	0.116	0.124	0.122	0.082	0.153	0.108	0.111
515.62	0.095	0.073	0.121	0.117	0.125	0.122	0.082	0.153	0.109	0.11
515.97	0.096	0.073	0.121	0.117	0.127	0.124	0.083	0.153	0.108	0.11
516.32	0.096	0.073	0.12	0.117	0.127	0.125	0.083	0.152	0.108	0.11
516.67	0.095	0.074	0.121	0.117	0.127	0.126	0.083	0.153	0.109	0.112
517.02	0.095	0.074	0.121	0.119	0.127	0.127	0.083	0.153	0.109	0.112
517.37	0.094	0.074	0.122	0.119	0.128	0.127	0.083	0.153	0.109	0.112
517.72	0.095	0.074	0.121	0.119	0.128	0.126	0.083	0.153	0.109	0.113
518.06	0.095	0.074	0.121	0.119	0.129	0.127	0.083	0.153	0.109	0.113
518.41	0.095	0.074	0.123	0.119	0.129	0.128	0.083	0.153	0.11	0.113
518.76	0.095	0.073	0.123	0.119	0.13	0.127	0.083	0.154	0.11	0.113
519.11	0.095	0.072	0.123	0.119	0.13	0.128	0.084	0.154	0.11	0.113
519.46	0.096	0.073	0.124	0.118	0.13	0.129	0.085	0.154	0.11	0.114
519.81	0.095	0.073	0.124	0.119	0.13	0.128	0.085	0.155	0.111	0.114
520.16	0.095	0.073	0.125	0.12	0.131	0.128	0.086	0.155	0.112	0.115
520.5	0.095	0.074	0.126	0.12	0.132	0.128	0.086	0.155	0.112	0.115
520.85	0.095	0.075	0.126	0.12	0.132	0.128	0.087	0.155	0.114	0.115
521.2	0.095	0.074	0.126	0.12	0.131	0.129	0.087	0.154	0.114	0.115
521.55	0.094	0.075	0.126	0.12	0.132	0.129	0.087	0.154	0.115	0.115
521.9	0.094	0.074	0.127	0.119	0.132	0.129	0.087	0.154	0.115	0.115
522.25	0.093	0.074	0.127	0.121	0.132	0.129	0.087	0.153	0.116	0.117
522.59	0.093	0.075	0.127	0.122	0.132	0.129	0.088	0.154	0.117	0.118
522.94	0.092	0.076	0.127	0.123	0.133	0.129	0.088	0.154	0.118	0.118
523.29	0.092	0.075	0.128	0.124	0.133	0.129	0.089	0.154	0.118	0.118
523.64	0.091	0.075	0.128	0.124	0.133	0.129	0.088	0.153	0.118	0.119
523.99	0.091	0.075	0.129	0.122	0.132	0.129	0.088	0.153	0.119	0.12
524.33	0.091	0.075	0.128	0.122	0.133	0.13	0.088	0.153	0.118	0.12
524.68	0.090	0.076	0.129	0.122	0.133	0.131	0.087	0.154	0.119	0.12
525.03	0.091	0.077	0.128	0.123	0.133	0.13	0.088	0.155	0.12	0.122
525.38	0.091	0.078	0.129	0.124	0.133	0.13	0.088	0.155	0.121	0.123
525.73	0.091	0.078	0.129	0.125	0.133	0.13	0.089	0.155	0.121	0.123
526.07	0.092	0.08	0.129	0.125	0.133	0.13	0.09	0.156	0.122	0.123
526.42	0.092	0.08	0.13	0.126	0.133	0.13	0.09	0.156	0.123	0.123
526.77	0.092	0.08	0.129	0.127	0.133	0.131	0.09	0.156	0.125	0.124
527.12	0.093	0.082	0.129	0.127	0.134	0.131	0.09	0.156	0.126	0.124
527.46	0.094	0.083	0.128	0.127	0.134	0.131	0.091	0.156	0.126	0.124
527.81	0.094	0.084	0.129	0.129	0.135	0.131	0.091	0.157	0.126	0.125
528.16	0.095	0.085	0.129	0.13	0.136	0.132	0.092	0.157	0.128	0.126

528.51	0.096	0.085	0.129	0.13	0.136	0.133	0.093	0.156	0.128	0.126
528.85	0.096	0.085	0.13	0.131	0.138	0.134	0.093	0.156	0.128	0.126
529.2	0.096	0.085	0.13	0.132	0.138	0.136	0.094	0.156	0.129	0.126
529.55	0.098	0.086	0.131	0.133	0.139	0.137	0.094	0.157	0.129	0.126
529.9	0.098	0.086	0.132	0.132	0.139	0.138	0.094	0.157	0.131	0.127
530.24	0.098	0.086	0.131	0.132	0.139	0.138	0.095	0.156	0.13	0.128
530.59	0.099	0.087	0.133	0.132	0.14	0.139	0.095	0.156	0.13	0.129
530.94	0.098	0.087	0.132	0.134	0.14	0.139	0.096	0.157	0.13	0.128
531.29	0.098	0.088	0.134	0.134	0.14	0.14	0.096	0.158	0.129	0.128
531.63	0.099	0.088	0.134	0.135	0.14	0.141	0.096	0.159	0.13	0.129
531.98	0.099	0.088	0.134	0.135	0.14	0.141	0.097	0.159	0.13	0.129
532.33	0.1	0.088	0.135	0.136	0.14	0.141	0.099	0.161	0.131	0.129
532.67	0.1	0.089	0.135	0.136	0.14	0.141	0.099	0.161	0.132	0.129
533.02	0.1	0.09	0.135	0.135	0.142	0.141	0.1	0.162	0.132	0.129
533.37	0.1	0.091	0.134	0.136	0.142	0.141	0.101	0.162	0.132	0.129
533.71	0.101	0.092	0.134	0.137	0.143	0.14	0.101	0.163	0.131	0.129
534.06	0.102	0.092	0.135	0.138	0.144	0.141	0.102	0.164	0.132	0.129
534.41	0.103	0.092	0.135	0.138	0.144	0.14	0.104	0.165	0.132	0.129
534.75	0.105	0.092	0.136	0.139	0.145	0.14	0.105	0.165	0.133	0.131
535.1	0.106	0.092	0.135	0.14	0.146	0.141	0.105	0.165	0.135	0.131
535.45	0.106	0.094	0.136	0.141	0.147	0.142	0.106	0.165	0.136	0.132
535.79	0.108	0.095	0.136	0.141	0.147	0.143	0.107	0.165	0.136	0.133
536.14	0.107	0.096	0.137	0.143	0.148	0.144	0.107	0.165	0.137	0.134
536.49	0.108	0.098	0.137	0.144	0.149	0.143	0.107	0.166	0.137	0.134
536.83	0.109	0.098	0.139	0.145	0.149	0.144	0.107	0.166	0.138	0.135
537.18	0.11	0.099	0.14	0.145	0.149	0.145	0.108	0.167	0.138	0.136
537.53	0.11	0.1	0.14	0.145	0.149	0.146	0.108	0.168	0.139	0.136
537.87	0.112	0.101	0.14	0.145	0.149	0.147	0.108	0.168	0.14	0.137
538.22	0.111	0.103	0.14	0.146	0.15	0.148	0.108	0.169	0.141	0.137
538.57	0.112	0.105	0.14	0.146	0.152	0.15	0.109	0.17	0.141	0.137
538.91	0.112	0.106	0.141	0.147	0.153	0.15	0.109	0.17	0.141	0.137
539.26	0.112	0.106	0.141	0.147	0.153	0.149	0.109	0.17	0.141	0.137
539.6	0.112	0.107	0.141	0.149	0.154	0.149	0.109	0.17	0.142	0.137
539.95	0.113	0.108	0.141	0.149	0.153	0.15	0.111	0.172	0.142	0.137
540.3	0.115	0.108	0.141	0.15	0.154	0.151	0.111	0.173	0.142	0.139
540.64	0.115	0.11	0.141	0.151	0.154	0.152	0.113	0.173	0.142	0.139
540.99	0.115	0.112	0.142	0.151	0.154	0.153	0.112	0.173	0.143	0.14
541.33	0.117	0.112	0.142	0.152	0.155	0.153	0.114	0.174	0.143	0.14
541.68	0.117	0.113	0.143	0.153	0.156	0.154	0.116	0.174	0.144	0.14

542.02	0.118	0.114	0.145	0.154	0.157	0.155	0.116	0.175	0.145	0.141
542.37	0.12	0.116	0.145	0.154	0.156	0.156	0.117	0.175	0.145	0.141
542.72	0.12	0.117	0.146	0.154	0.156	0.156	0.119	0.177	0.145	0.142
543.06	0.121	0.117	0.147	0.155	0.157	0.156	0.121	0.178	0.146	0.143
543.41	0.123	0.118	0.148	0.156	0.158	0.158	0.122	0.179	0.146	0.144
543.75	0.124	0.12	0.149	0.156	0.159	0.158	0.122	0.178	0.146	0.143
544.1	0.125	0.122	0.15	0.157	0.16	0.158	0.123	0.179	0.147	0.144
544.44	0.126	0.122	0.149	0.157	0.161	0.16	0.123	0.179	0.147	0.144
544.79	0.127	0.123	0.15	0.158	0.161	0.16	0.125	0.179	0.147	0.145
545.13	0.128	0.124	0.151	0.158	0.162	0.161	0.126	0.179	0.147	0.147
545.48	0.128	0.125	0.152	0.16	0.163	0.162	0.127	0.18	0.147	0.149
545.82	0.129	0.127	0.153	0.16	0.164	0.163	0.128	0.181	0.147	0.15
546.17	0.129	0.127	0.154	0.162	0.165	0.163	0.129	0.182	0.147	0.151
546.52	0.13	0.128	0.155	0.164	0.166	0.164	0.13	0.182	0.148	0.151
546.86	0.132	0.129	0.155	0.164	0.167	0.165	0.132	0.183	0.148	0.152
547.21	0.132	0.131	0.156	0.166	0.167	0.165	0.133	0.184	0.15	0.153
547.55	0.133	0.133	0.156	0.166	0.167	0.167	0.134	0.185	0.15	0.154
547.9	0.135	0.134	0.158	0.167	0.168	0.169	0.136	0.187	0.151	0.155
548.24	0.135	0.135	0.159	0.168	0.169	0.17	0.137	0.189	0.152	0.156
548.59	0.136	0.136	0.161	0.17	0.17	0.17	0.138	0.191	0.153	0.157
548.93	0.136	0.138	0.161	0.171	0.171	0.171	0.139	0.193	0.153	0.158
549.28	0.137	0.139	0.162	0.172	0.172	0.172	0.141	0.195	0.155	0.158
549.62	0.138	0.14	0.163	0.174	0.173	0.173	0.142	0.196	0.156	0.159
549.96	0.139	0.142	0.164	0.175	0.173	0.174	0.144	0.197	0.158	0.16
550.31	0.141	0.143	0.165	0.176	0.174	0.175	0.144	0.198	0.159	0.161
550.65	0.142	0.145	0.166	0.177	0.175	0.176	0.146	0.2	0.16	0.162
551	0.144	0.146	0.168	0.178	0.176	0.178	0.146	0.2	0.16	0.164
551.34	0.145	0.147	0.169	0.179	0.178	0.179	0.147	0.201	0.161	0.165
551.69	0.145	0.147	0.171	0.181	0.179	0.179	0.148	0.201	0.163	0.165
552.03	0.147	0.149	0.173	0.182	0.18	0.181	0.15	0.201	0.164	0.167
552.38	0.148	0.151	0.174	0.183	0.181	0.182	0.151	0.201	0.165	0.168
552.72	0.15	0.152	0.175	0.185	0.182	0.183	0.152	0.202	0.167	0.169
553.07	0.153	0.154	0.177	0.185	0.182	0.184	0.153	0.202	0.167	0.171
553.41	0.154	0.155	0.177	0.186	0.184	0.185	0.154	0.203	0.168	0.171
553.75	0.156	0.157	0.18	0.187	0.185	0.186	0.155	0.204	0.168	0.173
554.1	0.157	0.159	0.181	0.188	0.186	0.189	0.157	0.206	0.169	0.174
554.44	0.158	0.161	0.181	0.189	0.188	0.19	0.158	0.206	0.169	0.175
554.79	0.159	0.163	0.183	0.191	0.19	0.191	0.161	0.209	0.171	0.176
555.13	0.161	0.164	0.184	0.192	0.192	0.191	0.163	0.21	0.172	0.178

555.47	0.163	0.167	0.185	0.193	0.192	0.193	0.164	0.212	0.172	0.179
555.82	0.165	0.169	0.185	0.196	0.194	0.193	0.165	0.214	0.172	0.18
556.16	0.166	0.17	0.187	0.197	0.194	0.195	0.166	0.216	0.173	0.182
556.51	0.167	0.172	0.188	0.198	0.195	0.196	0.168	0.217	0.174	0.182
556.85	0.168	0.174	0.189	0.199	0.197	0.198	0.17	0.219	0.176	0.184
557.19	0.17	0.176	0.191	0.199	0.198	0.2	0.172	0.221	0.177	0.186
557.54	0.17	0.178	0.193	0.201	0.2	0.201	0.173	0.222	0.178	0.188
557.88	0.173	0.18	0.193	0.204	0.201	0.202	0.175	0.222	0.179	0.189
558.22	0.175	0.183	0.195	0.205	0.202	0.203	0.177	0.224	0.181	0.191
558.57	0.176	0.184	0.196	0.208	0.203	0.204	0.178	0.225	0.183	0.192
558.91	0.178	0.186	0.198	0.209	0.204	0.206	0.18	0.227	0.185	0.193
559.26	0.179	0.187	0.198	0.21	0.206	0.206	0.182	0.228	0.187	0.194
559.6	0.182	0.188	0.2	0.211	0.207	0.208	0.184	0.229	0.189	0.195
559.94	0.184	0.189	0.201	0.212	0.209	0.21	0.187	0.23	0.19	0.197
560.29	0.186	0.192	0.202	0.213	0.212	0.21	0.189	0.232	0.191	0.199
560.63	0.188	0.193	0.204	0.216	0.213	0.21	0.19	0.233	0.193	0.2
560.97	0.191	0.195	0.205	0.22	0.214	0.212	0.192	0.235	0.194	0.202
561.32	0.194	0.198	0.206	0.221	0.215	0.213	0.194	0.237	0.197	0.203
561.66	0.195	0.198	0.207	0.221	0.216	0.214	0.195	0.238	0.199	0.205
562	0.198	0.2	0.208	0.223	0.217	0.216	0.196	0.24	0.199	0.206
562.34	0.201	0.202	0.209	0.223	0.218	0.216	0.198	0.24	0.2	0.208
562.69	0.203	0.204	0.211	0.224	0.219	0.218	0.2	0.242	0.202	0.209
563.03	0.205	0.206	0.212	0.226	0.221	0.219	0.201	0.243	0.203	0.21
563.37	0.207	0.208	0.214	0.227	0.223	0.22	0.203	0.245	0.205	0.212
563.72	0.209	0.212	0.215	0.228	0.226	0.221	0.204	0.246	0.207	0.214
564.06	0.211	0.213	0.217	0.23	0.227	0.224	0.206	0.247	0.208	0.215
564.4	0.213	0.216	0.219	0.231	0.228	0.225	0.207	0.249	0.209	0.217
564.75	0.214	0.218	0.22	0.231	0.23	0.226	0.209	0.25	0.21	0.218
565.09	0.215	0.219	0.222	0.233	0.231	0.227	0.21	0.252	0.211	0.219
565.43	0.216	0.221	0.225	0.235	0.233	0.229	0.212	0.253	0.212	0.22
565.77	0.218	0.222	0.226	0.236	0.235	0.231	0.214	0.254	0.213	0.222
566.12	0.22	0.223	0.228	0.238	0.237	0.233	0.216	0.256	0.215	0.223
566.46	0.221	0.225	0.23	0.24	0.239	0.235	0.217	0.257	0.216	0.225
566.8	0.223	0.226	0.232	0.241	0.24	0.237	0.22	0.259	0.217	0.228
567.14	0.224	0.229	0.234	0.244	0.241	0.239	0.221	0.26	0.219	0.228
567.49	0.226	0.23	0.235	0.245	0.242	0.241	0.224	0.262	0.22	0.23
567.83	0.229	0.231	0.237	0.247	0.243	0.242	0.225	0.263	0.221	0.231
568.17	0.23	0.233	0.237	0.248	0.244	0.243	0.228	0.264	0.223	0.232
568.51	0.232	0.234	0.239	0.25	0.246	0.244	0.229	0.266	0.225	0.234

568.85	0.235	0.236	0.241	0.252	0.247	0.245	0.231	0.267	0.226	0.235
569.2	0.237	0.238	0.242	0.253	0.249	0.246	0.233	0.268	0.227	0.237
569.54	0.239	0.24	0.243	0.255	0.25	0.248	0.235	0.268	0.229	0.238
569.88	0.24	0.243	0.244	0.257	0.251	0.25	0.238	0.271	0.23	0.239
570.22	0.24	0.245	0.246	0.258	0.253	0.251	0.239	0.273	0.231	0.239
570.57	0.242	0.248	0.247	0.259	0.254	0.251	0.241	0.275	0.234	0.24
570.91	0.244	0.25	0.248	0.26	0.256	0.252	0.242	0.277	0.235	0.241
571.25	0.245	0.251	0.25	0.263	0.256	0.253	0.244	0.278	0.236	0.242
571.59	0.247	0.253	0.251	0.264	0.258	0.254	0.246	0.279	0.237	0.242
571.93	0.248	0.254	0.252	0.265	0.26	0.256	0.247	0.28	0.239	0.244
572.27	0.249	0.256	0.252	0.266	0.262	0.258	0.25	0.281	0.239	0.246
572.62	0.25	0.258	0.254	0.268	0.263	0.26	0.251	0.282	0.24	0.248
572.96	0.253	0.26	0.255	0.27	0.264	0.262	0.253	0.283	0.242	0.249
573.3	0.255	0.262	0.257	0.271	0.265	0.263	0.255	0.285	0.244	0.251
573.64	0.257	0.263	0.258	0.272	0.266	0.263	0.256	0.285	0.245	0.252
573.98	0.259	0.264	0.259	0.275	0.266	0.265	0.257	0.286	0.246	0.254
574.32	0.26	0.265	0.259	0.277	0.267	0.266	0.259	0.286	0.246	0.256
574.67	0.262	0.267	0.26	0.279	0.269	0.268	0.261	0.287	0.247	0.258
575.01	0.264	0.269	0.262	0.28	0.271	0.27	0.263	0.289	0.249	0.26
575.35	0.266	0.272	0.263	0.283	0.273	0.272	0.263	0.29	0.251	0.262
575.69	0.268	0.275	0.266	0.284	0.275	0.273	0.265	0.292	0.252	0.264
576.03	0.27	0.276	0.268	0.286	0.276	0.275	0.266	0.294	0.254	0.266
576.37	0.271	0.277	0.27	0.287	0.278	0.276	0.269	0.296	0.258	0.267
576.71	0.272	0.279	0.272	0.288	0.279	0.277	0.27	0.299	0.257	0.269
577.05	0.276	0.28	0.273	0.29	0.282	0.278	0.271	0.299	0.259	0.271
577.4	0.277	0.283	0.275	0.291	0.284	0.28	0.273	0.301	0.26	0.272
577.74	0.28	0.285	0.278	0.292	0.287	0.282	0.276	0.302	0.262	0.275
578.08	0.283	0.287	0.28	0.293	0.289	0.283	0.276	0.304	0.263	0.276
578.42	0.285	0.29	0.282	0.295	0.29	0.285	0.278	0.306	0.266	0.277
578.76	0.287	0.291	0.284	0.296	0.291	0.287	0.281	0.307	0.269	0.278
579.1	0.289	0.293	0.287	0.298	0.292	0.29	0.284	0.308	0.27	0.279
579.44	0.29	0.294	0.289	0.299	0.293	0.291	0.285	0.309	0.272	0.28
579.78	0.293	0.296	0.291	0.301	0.294	0.293	0.286	0.31	0.273	0.281
580.12	0.296	0.298	0.292	0.303	0.296	0.295	0.289	0.311	0.273	0.282
580.46	0.298	0.299	0.294	0.305	0.298	0.297	0.292	0.312	0.275	0.283
580.8	0.3	0.301	0.297	0.306	0.298	0.299	0.294	0.315	0.277	0.285
581.14	0.302	0.301	0.298	0.308	0.299	0.3	0.295	0.315	0.279	0.287
581.49	0.302	0.303	0.299	0.31	0.3	0.302	0.296	0.317	0.281	0.289
581.83	0.303	0.304	0.302	0.313	0.302	0.304	0.299	0.319	0.283	0.292

582.17	0.306	0.305	0.305	0.315	0.303	0.306	0.301	0.321	0.284	0.294
582.51	0.308	0.307	0.306	0.317	0.305	0.308	0.302	0.323	0.285	0.296
582.85	0.31	0.309	0.307	0.318	0.308	0.309	0.304	0.326	0.287	0.298
583.19	0.312	0.311	0.308	0.321	0.31	0.311	0.307	0.328	0.288	0.301
583.53	0.314	0.313	0.309	0.322	0.313	0.313	0.309	0.331	0.289	0.304
583.87	0.315	0.314	0.31	0.323	0.313	0.313	0.31	0.333	0.292	0.305
584.21	0.317	0.316	0.31	0.325	0.315	0.315	0.311	0.335	0.294	0.306
584.55	0.318	0.317	0.311	0.327	0.318	0.316	0.312	0.337	0.294	0.308
584.89	0.32	0.321	0.312	0.328	0.32	0.318	0.314	0.338	0.295	0.309
585.23	0.322	0.323	0.313	0.329	0.322	0.319	0.317	0.341	0.297	0.31
585.57	0.324	0.325	0.314	0.331	0.323	0.321	0.319	0.341	0.298	0.311
585.91	0.325	0.327	0.314	0.332	0.324	0.321	0.32	0.342	0.299	0.313
586.25	0.327	0.328	0.316	0.334	0.325	0.323	0.321	0.344	0.3	0.316
586.59	0.328	0.331	0.318	0.335	0.325	0.325	0.322	0.345	0.302	0.318
586.93	0.331	0.333	0.32	0.336	0.327	0.326	0.323	0.346	0.303	0.319
587.27	0.332	0.335	0.323	0.338	0.328	0.326	0.325	0.347	0.306	0.319
587.61	0.334	0.338	0.324	0.34	0.331	0.329	0.328	0.35	0.306	0.322
587.95	0.337	0.34	0.327	0.343	0.332	0.33	0.33	0.353	0.308	0.323
588.29	0.339	0.344	0.329	0.345	0.333	0.332	0.333	0.355	0.309	0.325
588.63	0.342	0.346	0.332	0.346	0.335	0.333	0.337	0.358	0.311	0.326
588.97	0.346	0.347	0.335	0.348	0.337	0.335	0.338	0.358	0.313	0.328
589.3	0.35	0.349	0.337	0.35	0.339	0.337	0.341	0.361	0.315	0.33
589.64	0.353	0.352	0.339	0.353	0.342	0.34	0.344	0.364	0.318	0.331
589.98	0.357	0.355	0.342	0.355	0.345	0.341	0.347	0.366	0.32	0.332
590.32	0.361	0.355	0.344	0.358	0.348	0.343	0.35	0.368	0.322	0.334
590.66	0.363	0.358	0.346	0.361	0.35	0.345	0.353	0.372	0.323	0.337
591	0.366	0.361	0.347	0.363	0.352	0.348	0.356	0.375	0.324	0.338
591.34	0.369	0.363	0.35	0.366	0.353	0.351	0.357	0.377	0.327	0.341
591.68	0.371	0.365	0.352	0.367	0.356	0.353	0.359	0.378	0.33	0.343
592.02	0.374	0.367	0.354	0.369	0.359	0.355	0.361	0.381	0.332	0.344
592.36	0.376	0.369	0.355	0.371	0.36	0.358	0.364	0.383	0.334	0.346
592.7	0.378	0.372	0.357	0.373	0.361	0.36	0.367	0.386	0.337	0.349
593.04	0.38	0.375	0.359	0.374	0.362	0.361	0.368	0.388	0.339	0.35
593.37	0.382	0.377	0.361	0.375	0.362	0.363	0.371	0.388	0.341	0.353
593.71	0.384	0.381	0.362	0.377	0.364	0.365	0.375	0.392	0.342	0.355
594.05	0.386	0.384	0.364	0.379	0.366	0.366	0.377	0.396	0.343	0.357
594.39	0.389	0.385	0.366	0.381	0.367	0.368	0.38	0.397	0.346	0.358
594.73	0.391	0.388	0.368	0.384	0.37	0.37	0.383	0.398	0.349	0.36
595.07	0.393	0.391	0.369	0.385	0.372	0.371	0.385	0.4	0.351	0.362

595.41	0.395	0.394	0.371	0.389	0.374	0.372	0.388	0.402	0.353	0.365
595.75	0.398	0.396	0.373	0.391	0.377	0.373	0.391	0.406	0.356	0.368
596.08	0.4	0.399	0.376	0.395	0.379	0.376	0.393	0.409	0.358	0.371
596.42	0.402	0.402	0.377	0.397	0.383	0.378	0.397	0.413	0.36	0.373
596.76	0.405	0.406	0.379	0.4	0.387	0.381	0.4	0.416	0.362	0.376
597.1	0.407	0.409	0.382	0.403	0.39	0.384	0.404	0.418	0.365	0.378
597.44	0.409	0.412	0.383	0.405	0.391	0.386	0.405	0.419	0.366	0.379
597.78	0.412	0.416	0.386	0.407	0.393	0.389	0.408	0.42	0.369	0.38
598.11	0.414	0.421	0.39	0.41	0.395	0.391	0.41	0.423	0.372	0.385
598.45	0.417	0.423	0.393	0.411	0.397	0.393	0.413	0.425	0.374	0.388
598.79	0.42	0.426	0.396	0.415	0.399	0.397	0.417	0.428	0.376	0.391
599.13	0.423	0.429	0.399	0.418	0.402	0.399	0.42	0.431	0.378	0.393
599.47	0.425	0.434	0.402	0.421	0.404	0.403	0.424	0.433	0.382	0.396
599.81	0.43	0.437	0.404	0.423	0.407	0.405	0.427	0.435	0.384	0.4
600.14	0.432	0.439	0.408	0.426	0.408	0.407	0.43	0.437	0.387	0.401
600.48	0.434	0.44	0.412	0.429	0.409	0.41	0.434	0.439	0.39	0.403
600.82	0.438	0.441	0.412	0.433	0.411	0.412	0.436	0.442	0.392	0.405
601.16	0.44	0.444	0.415	0.437	0.414	0.415	0.438	0.446	0.396	0.409
601.49	0.442	0.446	0.416	0.44	0.415	0.416	0.44	0.448	0.397	0.412
601.83	0.447	0.447	0.417	0.443	0.417	0.418	0.444	0.449	0.399	0.413
602.17	0.45	0.45	0.419	0.447	0.42	0.421	0.446	0.451	0.402	0.417
602.51	0.452	0.451	0.421	0.448	0.422	0.422	0.448	0.453	0.406	0.419
602.85	0.455	0.455	0.423	0.45	0.424	0.425	0.452	0.454	0.408	0.42
603.18	0.458	0.457	0.425	0.451	0.426	0.426	0.454	0.456	0.409	0.422
603.52	0.46	0.458	0.427	0.453	0.427	0.428	0.455	0.456	0.412	0.425
603.86	0.464	0.462	0.429	0.454	0.43	0.43	0.458	0.457	0.414	0.428
604.2	0.468	0.463	0.429	0.456	0.432	0.43	0.459	0.458	0.418	0.428
604.53	0.47	0.468	0.433	0.456	0.434	0.432	0.461	0.46	0.42	0.432
604.87	0.472	0.471	0.435	0.457	0.436	0.433	0.463	0.463	0.422	0.435
605.21	0.474	0.474	0.436	0.459	0.44	0.435	0.466	0.465	0.424	0.436
605.54	0.476	0.476	0.439	0.461	0.443	0.438	0.468	0.467	0.427	0.439
605.88	0.477	0.477	0.439	0.463	0.443	0.439	0.47	0.469	0.428	0.44
606.22	0.479	0.479	0.439	0.466	0.444	0.441	0.473	0.47	0.429	0.442
606.56	0.481	0.481	0.441	0.469	0.446	0.443	0.475	0.472	0.432	0.444
606.89	0.483	0.483	0.44	0.471	0.445	0.444	0.476	0.473	0.434	0.447
607.23	0.485	0.486	0.441	0.473	0.448	0.447	0.479	0.477	0.436	0.448
607.57	0.484	0.487	0.44	0.475	0.449	0.447	0.48	0.479	0.436	0.449
607.9	0.483	0.491	0.442	0.477	0.449	0.45	0.481	0.481	0.436	0.452
608.24	0.485	0.493	0.444	0.479	0.451	0.45	0.483	0.482	0.438	0.452

608.58	0.487	0.494	0.444	0.481	0.452	0.452	0.487	0.483	0.438	0.454
608.91	0.488	0.496	0.447	0.481	0.453	0.454	0.49	0.485	0.441	0.456
609.25	0.489	0.497	0.446	0.482	0.455	0.454	0.49	0.485	0.443	0.457
609.59	0.49	0.5	0.449	0.484	0.457	0.457	0.492	0.488	0.444	0.459
609.92	0.492	0.501	0.452	0.483	0.458	0.458	0.492	0.49	0.445	0.46
610.26	0.494	0.501	0.453	0.483	0.459	0.458	0.493	0.491	0.446	0.461
610.6	0.494	0.502	0.454	0.486	0.462	0.46	0.493	0.493	0.446	0.462
610.93	0.496	0.503	0.455	0.488	0.461	0.46	0.496	0.494	0.448	0.462
611.27	0.499	0.505	0.458	0.489	0.463	0.463	0.497	0.496	0.45	0.463
611.61	0.502	0.503	0.459	0.49	0.465	0.464	0.499	0.497	0.451	0.465
611.94	0.503	0.503	0.458	0.492	0.466	0.466	0.501	0.497	0.451	0.464
612.28	0.504	0.504	0.46	0.492	0.467	0.467	0.502	0.499	0.454	0.464
612.61	0.506	0.505	0.459	0.494	0.468	0.467	0.503	0.5	0.454	0.467
612.95	0.507	0.507	0.461	0.496	0.469	0.467	0.505	0.502	0.454	0.469
613.29	0.507	0.508	0.461	0.496	0.469	0.466	0.505	0.502	0.455	0.468
613.62	0.506	0.508	0.46	0.496	0.468	0.467	0.507	0.501	0.454	0.469
613.96	0.507	0.51	0.461	0.496	0.468	0.466	0.507	0.5	0.454	0.471
614.3	0.51	0.512	0.463	0.495	0.467	0.467	0.507	0.499	0.455	0.47
614.63	0.51	0.512	0.463	0.493	0.468	0.467	0.506	0.499	0.454	0.471
614.97	0.511	0.515	0.465	0.494	0.468	0.469	0.508	0.5	0.455	0.473
615.3	0.511	0.515	0.464	0.494	0.468	0.469	0.508	0.5	0.455	0.473
615.64	0.513	0.518	0.465	0.495	0.469	0.469	0.508	0.5	0.455	0.475
615.97	0.513	0.518	0.465	0.495	0.468	0.469	0.507	0.5	0.456	0.476
616.31	0.512	0.519	0.468	0.495	0.469	0.471	0.507	0.498	0.456	0.475
616.65	0.513	0.518	0.467	0.494	0.47	0.471	0.506	0.497	0.456	0.474
616.98	0.516	0.519	0.469	0.494	0.471	0.472	0.506	0.496	0.456	0.475
617.32	0.518	0.52	0.47	0.496	0.471	0.472	0.506	0.497	0.456	0.476
617.65	0.518	0.519	0.47	0.498	0.472	0.473	0.506	0.499	0.457	0.475
617.99	0.518	0.52	0.471	0.501	0.475	0.473	0.508	0.501	0.456	0.475
618.32	0.517	0.521	0.472	0.502	0.476	0.476	0.508	0.501	0.459	0.475
618.66	0.518	0.52	0.472	0.503	0.476	0.475	0.508	0.501	0.458	0.474
618.99	0.518	0.521	0.474	0.506	0.477	0.476	0.509	0.502	0.46	0.476
619.33	0.518	0.521	0.473	0.506	0.478	0.476	0.508	0.502	0.46	0.475
619.66	0.515	0.521	0.473	0.505	0.479	0.477	0.51	0.503	0.46	0.474
620	0.516	0.521	0.471	0.506	0.478	0.475	0.51	0.505	0.46	0.474
620.33	0.517	0.523	0.473	0.507	0.479	0.476	0.512	0.505	0.461	0.475
620.67	0.515	0.522	0.472	0.509	0.479	0.476	0.513	0.507	0.461	0.474
621	0.517	0.524	0.473	0.509	0.479	0.476	0.515	0.507	0.462	0.477
621.34	0.517	0.525	0.474	0.51	0.48	0.477	0.517	0.509	0.464	0.478

621.67	0.518	0.524	0.474	0.51	0.479	0.478	0.517	0.509	0.467	0.478
622.01	0.518	0.525	0.474	0.51	0.479	0.477	0.518	0.509	0.464	0.479
622.34	0.519	0.526	0.477	0.512	0.48	0.479	0.52	0.51	0.467	0.481
622.68	0.518	0.527	0.476	0.513	0.48	0.48	0.52	0.51	0.467	0.481
623.01	0.52	0.528	0.479	0.515	0.48	0.48	0.522	0.512	0.467	0.483
623.35	0.522	0.53	0.479	0.517	0.482	0.48	0.522	0.511	0.468	0.485
623.68	0.522	0.53	0.48	0.519	0.482	0.482	0.522	0.513	0.469	0.486
624.02	0.523	0.53	0.479	0.52	0.483	0.482	0.523	0.513	0.469	0.486
624.35	0.524	0.532	0.482	0.521	0.482	0.483	0.523	0.511	0.471	0.488
624.69	0.523	0.532	0.482	0.522	0.484	0.486	0.523	0.511	0.473	0.488
625.02	0.525	0.532	0.482	0.522	0.484	0.485	0.522	0.509	0.472	0.488
625.36	0.524	0.531	0.482	0.523	0.485	0.485	0.524	0.509	0.469	0.489
625.69	0.524	0.53	0.483	0.524	0.485	0.485	0.523	0.509	0.47	0.488
626.02	0.523	0.53	0.48	0.523	0.483	0.484	0.522	0.508	0.469	0.486
626.36	0.524	0.531	0.48	0.521	0.484	0.485	0.522	0.508	0.469	0.487
626.69	0.522	0.531	0.48	0.521	0.485	0.486	0.522	0.508	0.469	0.487
627.03	0.523	0.531	0.48	0.522	0.483	0.486	0.521	0.508	0.468	0.487
627.36	0.524	0.53	0.481	0.52	0.484	0.485	0.52	0.506	0.467	0.487
627.7	0.522	0.531	0.481	0.518	0.483	0.484	0.52	0.508	0.466	0.488
628.03	0.521	0.532	0.479	0.517	0.484	0.484	0.522	0.51	0.465	0.487
628.36	0.521	0.532	0.477	0.516	0.483	0.484	0.522	0.511	0.466	0.488
628.7	0.518	0.534	0.478	0.517	0.486	0.485	0.522	0.514	0.465	0.487
629.03	0.519	0.536	0.478	0.517	0.487	0.485	0.522	0.513	0.467	0.487
629.36	0.522	0.537	0.476	0.517	0.487	0.484	0.523	0.513	0.467	0.488
629.7	0.522	0.536	0.476	0.516	0.488	0.483	0.523	0.512	0.467	0.488
630.03	0.524	0.536	0.476	0.517	0.487	0.483	0.523	0.51	0.466	0.488
630.37	0.524	0.535	0.475	0.516	0.486	0.483	0.523	0.509	0.466	0.488
630.7	0.523	0.535	0.474	0.516	0.487	0.483	0.524	0.51	0.465	0.488
631.03	0.522	0.535	0.474	0.516	0.487	0.482	0.525	0.511	0.465	0.488
631.37	0.523	0.534	0.474	0.519	0.486	0.483	0.525	0.509	0.466	0.486
631.7	0.522	0.534	0.474	0.52	0.485	0.483	0.523	0.508	0.465	0.486
632.03	0.522	0.533	0.474	0.52	0.484	0.481	0.522	0.507	0.464	0.486
632.37	0.525	0.532	0.474	0.519	0.482	0.481	0.522	0.506	0.464	0.485
632.7	0.522	0.531	0.471	0.517	0.481	0.48	0.52	0.505	0.463	0.484
633.03	0.519	0.532	0.471	0.517	0.482	0.482	0.521	0.507	0.465	0.486
633.37	0.519	0.533	0.472	0.519	0.481	0.483	0.52	0.508	0.463	0.486
633.7	0.518	0.532	0.472	0.519	0.482	0.483	0.522	0.508	0.463	0.486
634.03	0.519	0.532	0.475	0.519	0.482	0.481	0.521	0.509	0.463	0.486
634.37	0.521	0.531	0.476	0.519	0.481	0.482	0.519	0.509	0.464	0.485

634.7	0.52	0.528	0.476	0.518	0.48	0.482	0.518	0.509	0.464	0.483
635.03	0.521	0.529	0.474	0.515	0.48	0.481	0.516	0.509	0.463	0.483
635.37	0.52	0.528	0.474	0.514	0.479	0.481	0.515	0.508	0.462	0.482
635.7	0.52	0.528	0.476	0.515	0.481	0.481	0.515	0.508	0.461	0.482
636.03	0.518	0.527	0.474	0.514	0.48	0.48	0.514	0.506	0.461	0.481
636.36	0.518	0.528	0.476	0.514	0.48	0.478	0.513	0.506	0.458	0.48
636.7	0.52	0.528	0.476	0.513	0.479	0.477	0.511	0.504	0.457	0.479
637.03	0.518	0.528	0.475	0.512	0.479	0.477	0.51	0.505	0.458	0.479
637.36	0.518	0.529	0.475	0.513	0.481	0.477	0.51	0.506	0.459	0.481
637.69	0.516	0.531	0.473	0.514	0.481	0.478	0.511	0.506	0.459	0.48
638.03	0.515	0.531	0.472	0.512	0.48	0.476	0.511	0.505	0.458	0.479
638.36	0.517	0.534	0.471	0.513	0.479	0.478	0.512	0.505	0.458	0.48
638.69	0.515	0.533	0.472	0.515	0.48	0.478	0.514	0.505	0.457	0.482
639.02	0.516	0.534	0.472	0.516	0.48	0.478	0.516	0.506	0.459	0.483
639.36	0.517	0.532	0.471	0.515	0.478	0.477	0.515	0.504	0.457	0.482
639.69	0.518	0.531	0.471	0.515	0.479	0.479	0.517	0.505	0.456	0.482
640.02	0.519	0.531	0.471	0.517	0.476	0.481	0.518	0.507	0.458	0.484
640.35	0.519	0.53	0.473	0.518	0.476	0.482	0.521	0.507	0.458	0.484
640.69	0.519	0.529	0.474	0.519	0.478	0.482	0.522	0.505	0.457	0.483
641.02	0.518	0.526	0.472	0.517	0.475	0.482	0.52	0.504	0.455	0.48
641.35	0.517	0.525	0.473	0.516	0.473	0.48	0.52	0.503	0.453	0.48
641.68	0.518	0.524	0.472	0.518	0.474	0.481	0.523	0.503	0.454	0.482
642.01	0.517	0.523	0.473	0.519	0.474	0.479	0.523	0.505	0.452	0.482
642.35	0.517	0.523	0.472	0.519	0.474	0.48	0.523	0.504	0.452	0.481
642.68	0.515	0.523	0.473	0.518	0.474	0.481	0.522	0.505	0.451	0.479
643.01	0.513	0.524	0.472	0.517	0.475	0.481	0.522	0.507	0.451	0.48
643.34	0.513	0.526	0.473	0.516	0.476	0.48	0.523	0.507	0.451	0.48
643.67	0.512	0.526	0.472	0.517	0.477	0.48	0.524	0.507	0.45	0.478
644	0.513	0.526	0.472	0.516	0.478	0.479	0.521	0.506	0.451	0.479
644.34	0.513	0.527	0.471	0.516	0.476	0.479	0.522	0.507	0.45	0.478
644.67	0.513	0.529	0.473	0.516	0.477	0.48	0.523	0.509	0.45	0.48
645	0.515	0.528	0.472	0.514	0.477	0.481	0.522	0.51	0.449	0.478
645.33	0.514	0.528	0.473	0.514	0.478	0.482	0.519	0.512	0.449	0.477
645.66	0.513	0.53	0.472	0.513	0.479	0.482	0.519	0.511	0.449	0.478
645.99	0.513	0.529	0.472	0.514	0.478	0.483	0.519	0.511	0.45	0.479
646.32	0.514	0.527	0.472	0.514	0.478	0.484	0.519	0.511	0.452	0.479
646.66	0.515	0.529	0.475	0.516	0.479	0.484	0.518	0.511	0.454	0.48
646.99	0.516	0.53	0.478	0.517	0.48	0.484	0.517	0.51	0.452	0.479
647.32	0.516	0.531	0.481	0.518	0.48	0.483	0.518	0.512	0.454	0.48

647.65	0.516	0.53	0.479	0.52	0.481	0.483	0.521	0.515	0.452	0.48
647.98	0.518	0.53	0.481	0.524	0.483	0.484	0.522	0.516	0.454	0.484
648.31	0.519	0.53	0.479	0.524	0.485	0.485	0.523	0.515	0.455	0.484
648.64	0.52	0.532	0.481	0.527	0.486	0.485	0.525	0.517	0.456	0.486
648.97	0.52	0.533	0.482	0.528	0.485	0.485	0.527	0.516	0.458	0.486
649.3	0.523	0.532	0.484	0.529	0.486	0.486	0.526	0.516	0.459	0.485
649.64	0.523	0.535	0.487	0.531	0.49	0.487	0.527	0.517	0.459	0.486
649.97	0.525	0.537	0.487	0.533	0.489	0.485	0.53	0.518	0.46	0.488
650.3	0.526	0.537	0.486	0.533	0.49	0.486	0.532	0.52	0.461	0.489
650.63	0.526	0.535	0.486	0.535	0.49	0.488	0.533	0.522	0.462	0.492
650.96	0.529	0.534	0.486	0.535	0.49	0.49	0.534	0.519	0.461	0.492
651.29	0.532	0.537	0.488	0.536	0.492	0.492	0.536	0.519	0.464	0.493
651.62	0.532	0.537	0.487	0.534	0.492	0.494	0.536	0.52	0.463	0.493
651.95	0.533	0.54	0.489	0.536	0.492	0.495	0.538	0.519	0.465	0.494
652.28	0.534	0.542	0.49	0.538	0.494	0.496	0.537	0.519	0.466	0.495
652.61	0.536	0.544	0.492	0.541	0.498	0.499	0.539	0.522	0.467	0.496
652.94	0.536	0.546	0.494	0.544	0.5	0.503	0.543	0.526	0.47	0.499
653.27	0.54	0.548	0.494	0.546	0.499	0.505	0.543	0.527	0.472	0.501
653.6	0.543	0.551	0.496	0.547	0.502	0.508	0.543	0.528	0.473	0.502
653.93	0.545	0.557	0.498	0.55	0.504	0.511	0.546	0.53	0.476	0.506
654.26	0.549	0.561	0.498	0.555	0.505	0.514	0.549	0.534	0.481	0.508
654.59	0.551	0.564	0.499	0.557	0.509	0.517	0.552	0.538	0.485	0.512
654.92	0.549	0.568	0.501	0.558	0.511	0.519	0.553	0.538	0.488	0.514
655.25	0.552	0.572	0.504	0.56	0.513	0.52	0.554	0.54	0.489	0.516
655.58	0.556	0.575	0.507	0.562	0.516	0.522	0.556	0.545	0.491	0.52
655.91	0.56	0.576	0.508	0.566	0.518	0.524	0.563	0.549	0.494	0.523
656.24	0.564	0.58	0.511	0.567	0.52	0.524	0.565	0.549	0.497	0.528
656.57	0.566	0.583	0.514	0.568	0.524	0.524	0.567	0.551	0.497	0.53
656.9	0.569	0.586	0.519	0.571	0.529	0.527	0.573	0.555	0.5	0.533
657.23	0.571	0.589	0.523	0.574	0.532	0.53	0.578	0.556	0.504	0.538
657.56	0.575	0.589	0.526	0.575	0.533	0.533	0.579	0.557	0.506	0.537
657.89	0.578	0.593	0.532	0.577	0.538	0.536	0.582	0.558	0.509	0.538
658.22	0.58	0.595	0.539	0.579	0.539	0.536	0.586	0.561	0.512	0.54
658.55	0.584	0.6	0.543	0.585	0.543	0.539	0.591	0.567	0.516	0.546
658.88	0.589	0.6	0.545	0.589	0.545	0.542	0.595	0.569	0.52	0.552
659.21	0.592	0.602	0.548	0.591	0.548	0.544	0.599	0.572	0.525	0.553
659.54	0.596	0.607	0.553	0.593	0.552	0.549	0.601	0.577	0.53	0.557
659.87	0.598	0.608	0.557	0.595	0.554	0.553	0.601	0.58	0.53	0.558
660.2	0.603	0.614	0.563	0.597	0.556	0.558	0.609	0.586	0.537	0.565

660.53	0.604	0.616	0.565	0.598	0.558	0.56	0.611	0.587	0.541	0.567
660.85	0.608	0.62	0.567	0.601	0.562	0.563	0.614	0.591	0.544	0.57
661.18	0.609	0.624	0.57	0.605	0.568	0.567	0.619	0.597	0.549	0.574
661.51	0.613	0.626	0.573	0.609	0.572	0.572	0.623	0.604	0.554	0.581
661.84	0.616	0.63	0.574	0.615	0.581	0.579	0.627	0.608	0.558	0.585
662.17	0.622	0.629	0.578	0.619	0.583	0.58	0.626	0.61	0.562	0.586
662.5	0.624	0.634	0.582	0.619	0.587	0.584	0.631	0.615	0.566	0.587
662.83	0.628	0.638	0.587	0.624	0.592	0.588	0.632	0.617	0.57	0.593
663.16	0.63	0.64	0.592	0.628	0.592	0.59	0.633	0.617	0.573	0.597
663.49	0.633	0.646	0.593	0.636	0.598	0.594	0.641	0.623	0.581	0.601
663.81	0.638	0.65	0.595	0.641	0.601	0.596	0.642	0.623	0.585	0.601
664.14	0.642	0.653	0.596	0.646	0.606	0.601	0.644	0.627	0.587	0.604
664.47	0.644	0.657	0.6	0.646	0.608	0.606	0.646	0.628	0.589	0.607
664.8	0.646	0.659	0.603	0.648	0.608	0.605	0.647	0.628	0.589	0.61
665.13	0.65	0.664	0.603	0.651	0.611	0.607	0.647	0.628	0.588	0.613
665.46	0.654	0.668	0.606	0.651	0.611	0.606	0.65	0.629	0.587	0.617
665.79	0.657	0.672	0.609	0.653	0.615	0.611	0.655	0.631	0.589	0.622
666.11	0.66	0.676	0.611	0.66	0.618	0.613	0.656	0.634	0.592	0.624
666.44	0.663	0.68	0.613	0.664	0.621	0.616	0.661	0.637	0.592	0.624
666.77	0.668	0.681	0.614	0.667	0.628	0.62	0.666	0.639	0.593	0.626
667.1	0.673	0.681	0.618	0.667	0.63	0.622	0.665	0.637	0.592	0.63
667.43	0.676	0.682	0.62	0.671	0.633	0.624	0.667	0.638	0.592	0.633
667.76	0.681	0.688	0.624	0.677	0.639	0.624	0.672	0.643	0.598	0.637
668.08	0.683	0.69	0.628	0.681	0.647	0.626	0.678	0.645	0.603	0.639
668.41	0.685	0.694	0.632	0.684	0.652	0.63	0.68	0.648	0.608	0.642
668.74	0.688	0.693	0.633	0.685	0.653	0.63	0.683	0.65	0.613	0.641
669.07	0.69	0.695	0.635	0.689	0.656	0.637	0.685	0.652	0.617	0.642
669.4	0.691	0.698	0.639	0.691	0.659	0.639	0.686	0.656	0.622	0.644
669.72	0.696	0.696	0.641	0.692	0.658	0.639	0.688	0.654	0.624	0.648
670.05	0.699	0.699	0.643	0.692	0.66	0.642	0.689	0.655	0.63	0.649
670.38	0.702	0.706	0.645	0.695	0.662	0.644	0.693	0.658	0.636	0.653
670.71	0.699	0.709	0.647	0.697	0.664	0.65	0.696	0.663	0.639	0.655
671.03	0.7	0.706	0.648	0.695	0.667	0.65	0.696	0.666	0.643	0.657
671.36	0.701	0.704	0.647	0.695	0.664	0.653	0.695	0.666	0.641	0.658
671.69	0.702	0.705	0.648	0.696	0.66	0.656	0.696	0.669	0.641	0.661
672.02	0.701	0.699	0.647	0.698	0.655	0.654	0.697	0.666	0.641	0.66
672.34	0.702	0.701	0.652	0.698	0.657	0.655	0.697	0.665	0.639	0.664
672.67	0.701	0.699	0.653	0.698	0.657	0.653	0.694	0.666	0.639	0.665
673	0.705	0.694	0.649	0.696	0.655	0.651	0.694	0.662	0.635	0.664

673.33	0.702	0.701	0.652	0.698	0.657	0.654	0.698	0.666	0.635	0.663
673.65	0.7	0.703	0.657	0.698	0.661	0.656	0.7	0.666	0.634	0.669
673.98	0.7	0.703	0.654	0.697	0.659	0.657	0.695	0.665	0.638	0.667
674.31	0.7	0.702	0.653	0.694	0.656	0.655	0.694	0.661	0.636	0.666
674.63	0.7	0.702	0.652	0.695	0.655	0.656	0.697	0.662	0.635	0.665
674.96	0.701	0.703	0.652	0.691	0.655	0.655	0.693	0.657	0.635	0.662
675.29	0.704	0.704	0.653	0.687	0.658	0.653	0.693	0.654	0.639	0.66
675.61	0.708	0.709	0.653	0.684	0.662	0.655	0.694	0.656	0.64	0.661
675.94	0.707	0.71	0.651	0.687	0.663	0.658	0.696	0.659	0.642	0.659
676.27	0.708	0.71	0.648	0.689	0.663	0.658	0.698	0.657	0.642	0.659
676.6	0.704	0.712	0.654	0.692	0.665	0.665	0.701	0.661	0.649	0.662
676.92	0.707	0.71	0.654	0.693	0.663	0.663	0.702	0.662	0.65	0.666
677.25	0.709	0.71	0.653	0.691	0.661	0.662	0.7	0.664	0.65	0.662
677.58	0.709	0.705	0.655	0.69	0.662	0.658	0.7	0.661	0.644	0.663
677.9	0.714	0.707	0.655	0.692	0.665	0.658	0.703	0.665	0.646	0.664
678.23	0.713	0.709	0.653	0.695	0.663	0.66	0.701	0.663	0.644	0.666
678.55	0.71	0.708	0.656	0.698	0.66	0.661	0.702	0.666	0.646	0.665
678.88	0.705	0.71	0.654	0.701	0.655	0.66	0.699	0.67	0.642	0.664
679.21	0.705	0.708	0.655	0.701	0.653	0.659	0.695	0.669	0.643	0.663
679.53	0.706	0.705	0.654	0.696	0.648	0.656	0.694	0.666	0.646	0.662
679.86	0.709	0.705	0.654	0.692	0.646	0.653	0.694	0.666	0.644	0.661
680.19	0.708	0.705	0.647	0.689	0.646	0.647	0.691	0.663	0.64	0.655
680.51	0.704	0.702	0.645	0.686	0.645	0.645	0.686	0.658	0.639	0.649
680.84	0.704	0.699	0.642	0.686	0.641	0.643	0.686	0.658	0.638	0.649
681.16	0.704	0.703	0.641	0.688	0.639	0.644	0.688	0.66	0.638	0.65
681.49	0.698	0.7	0.639	0.683	0.638	0.645	0.683	0.658	0.635	0.646
681.82	0.694	0.699	0.643	0.682	0.637	0.643	0.684	0.658	0.638	0.644
682.14	0.697	0.7	0.64	0.678	0.638	0.643	0.687	0.658	0.64	0.647
682.47	0.696	0.7	0.64	0.677	0.643	0.643	0.684	0.656	0.643	0.65
682.79	0.695	0.699	0.637	0.678	0.643	0.644	0.685	0.657	0.642	0.65
683.12	0.691	0.702	0.637	0.679	0.646	0.643	0.686	0.656	0.638	0.652
683.45	0.685	0.704	0.637	0.68	0.647	0.643	0.683	0.655	0.64	0.651
683.77	0.683	0.704	0.638	0.682	0.643	0.645	0.682	0.658	0.641	0.653
684.1	0.685	0.706	0.639	0.682	0.645	0.648	0.682	0.66	0.641	0.655
684.42	0.685	0.703	0.633	0.678	0.641	0.646	0.678	0.656	0.642	0.653
684.75	0.682	0.699	0.631	0.678	0.64	0.646	0.675	0.652	0.644	0.652
685.07	0.679	0.698	0.631	0.678	0.641	0.641	0.675	0.653	0.644	0.653
685.4	0.677	0.697	0.628	0.676	0.638	0.641	0.673	0.654	0.643	0.651
685.72	0.674	0.693	0.626	0.675	0.636	0.637	0.671	0.648	0.64	0.647

686.05	0.669	0.69	0.624	0.672	0.632	0.635	0.671	0.646	0.633	0.645
686.37	0.662	0.687	0.624	0.671	0.629	0.634	0.668	0.645	0.63	0.642
686.7	0.663	0.685	0.622	0.67	0.628	0.635	0.666	0.647	0.63	0.639
687.02	0.66	0.68	0.62	0.666	0.626	0.632	0.666	0.645	0.629	0.635
687.35	0.656	0.678	0.616	0.662	0.624	0.629	0.665	0.641	0.627	0.634
687.67	0.65	0.678	0.611	0.661	0.621	0.627	0.661	0.64	0.626	0.631
688	0.644	0.676	0.609	0.661	0.621	0.624	0.663	0.638	0.619	0.629
688.32	0.638	0.675	0.608	0.656	0.619	0.622	0.662	0.636	0.616	0.625
688.65	0.635	0.673	0.606	0.654	0.617	0.622	0.659	0.634	0.616	0.623
688.97	0.63	0.669	0.603	0.651	0.615	0.616	0.655	0.629	0.613	0.62
689.3	0.623	0.665	0.599	0.648	0.61	0.612	0.649	0.629	0.609	0.618
689.62	0.621	0.663	0.595	0.644	0.606	0.605	0.644	0.627	0.607	0.614
689.95	0.619	0.658	0.59	0.637	0.605	0.601	0.639	0.621	0.606	0.61
690.27	0.611	0.654	0.586	0.632	0.6	0.597	0.633	0.613	0.601	0.608
690.6	0.608	0.65	0.58	0.628	0.597	0.591	0.628	0.61	0.594	0.601
690.92	0.603	0.645	0.578	0.623	0.592	0.588	0.623	0.607	0.59	0.595
691.25	0.6	0.637	0.576	0.616	0.586	0.582	0.619	0.604	0.584	0.591
691.57	0.596	0.633	0.573	0.612	0.581	0.578	0.611	0.6	0.58	0.586
691.89	0.592	0.625	0.567	0.607	0.577	0.576	0.606	0.597	0.574	0.582
692.22	0.587	0.619	0.559	0.6	0.57	0.568	0.598	0.591	0.568	0.575
692.54	0.581	0.613	0.555	0.591	0.566	0.565	0.592	0.587	0.561	0.569
692.87	0.579	0.608	0.552	0.585	0.563	0.564	0.589	0.583	0.557	0.562
693.19	0.575	0.599	0.55	0.581	0.557	0.56	0.585	0.578	0.553	0.556
693.52	0.566	0.597	0.543	0.579	0.548	0.555	0.581	0.576	0.549	0.553
693.84	0.56	0.588	0.54	0.574	0.544	0.551	0.576	0.572	0.546	0.548
694.16	0.553	0.582	0.539	0.569	0.539	0.545	0.569	0.567	0.544	0.548
694.49	0.546	0.574	0.534	0.564	0.534	0.541	0.564	0.563	0.54	0.543
694.81	0.541	0.565	0.528	0.559	0.528	0.535	0.555	0.553	0.533	0.536
695.14	0.533	0.558	0.522	0.554	0.524	0.53	0.549	0.549	0.529	0.53
695.46	0.529	0.549	0.517	0.549	0.519	0.522	0.542	0.542	0.521	0.525
695.78	0.522	0.541	0.512	0.543	0.511	0.517	0.535	0.536	0.517	0.519
696.11	0.517	0.534	0.504	0.541	0.504	0.512	0.529	0.53	0.514	0.514
696.43	0.508	0.528	0.5	0.537	0.498	0.504	0.519	0.524	0.511	0.513
696.75	0.498	0.519	0.492	0.53	0.492	0.498	0.51	0.52	0.505	0.507
697.08	0.495	0.511	0.488	0.524	0.489	0.493	0.506	0.516	0.5	0.502
697.4	0.49	0.505	0.479	0.519	0.481	0.486	0.501	0.513	0.496	0.494
697.72	0.482	0.5	0.472	0.512	0.474	0.482	0.495	0.508	0.491	0.488
698.05	0.476	0.492	0.465	0.506	0.469	0.474	0.488	0.498	0.483	0.483
698.37	0.465	0.487	0.46	0.502	0.463	0.469	0.484	0.494	0.48	0.479

698.69	0.459	0.482	0.453	0.494	0.456	0.463	0.477	0.486	0.475	0.474
699.02	0.449	0.476	0.445	0.484	0.448	0.457	0.47	0.479	0.473	0.466
699.34	0.444	0.471	0.441	0.479	0.447	0.453	0.465	0.475	0.465	0.464
699.66	0.438	0.468	0.438	0.473	0.445	0.448	0.46	0.471	0.46	0.461
699.99	0.432	0.461	0.434	0.467	0.441	0.446	0.456	0.465	0.453	0.454
700.31	0.429	0.455	0.429	0.462	0.436	0.443	0.455	0.459	0.447	0.451
700.63	0.424	0.45	0.422	0.454	0.429	0.437	0.445	0.45	0.442	0.446
700.96	0.417	0.447	0.419	0.45	0.428	0.431	0.437	0.446	0.436	0.44
701.28	0.41	0.437	0.413	0.445	0.422	0.424	0.428	0.44	0.431	0.434
701.6	0.405	0.429	0.407	0.439	0.416	0.419	0.421	0.437	0.425	0.429
701.92	0.402	0.424	0.403	0.43	0.412	0.413	0.415	0.431	0.419	0.423
702.25	0.394	0.416	0.404	0.428	0.408	0.409	0.41	0.428	0.415	0.416
702.57	0.39	0.409	0.401	0.425	0.403	0.405	0.406	0.426	0.411	0.413
702.89	0.384	0.4	0.396	0.419	0.396	0.398	0.401	0.42	0.41	0.406
703.21	0.378	0.392	0.391	0.416	0.39	0.393	0.395	0.414	0.405	0.399
703.54	0.371	0.386	0.384	0.411	0.384	0.386	0.388	0.407	0.4	0.394
703.86	0.364	0.381	0.382	0.407	0.38	0.38	0.381	0.401	0.396	0.389
704.18	0.355	0.376	0.381	0.403	0.378	0.378	0.377	0.396	0.391	0.386
704.5	0.35	0.367	0.375	0.399	0.375	0.373	0.374	0.391	0.388	0.384
704.83	0.344	0.363	0.372	0.394	0.373	0.371	0.371	0.388	0.384	0.38
705.15	0.339	0.361	0.369	0.389	0.369	0.368	0.367	0.384	0.383	0.376
705.47	0.33	0.355	0.362	0.386	0.364	0.364	0.362	0.379	0.38	0.376
705.79	0.324	0.348	0.357	0.379	0.359	0.358	0.357	0.375	0.376	0.375
706.12	0.316	0.344	0.351	0.376	0.355	0.355	0.352	0.37	0.373	0.371
706.44	0.309	0.339	0.348	0.371	0.354	0.349	0.349	0.365	0.37	0.365
706.76	0.306	0.333	0.34	0.364	0.348	0.342	0.342	0.359	0.364	0.358
707.08	0.302	0.327	0.336	0.362	0.344	0.34	0.336	0.356	0.361	0.355
707.4	0.296	0.322	0.332	0.357	0.34	0.339	0.332	0.353	0.356	0.349
707.73	0.291	0.314	0.325	0.35	0.334	0.331	0.326	0.349	0.353	0.344
708.05	0.285	0.311	0.32	0.345	0.327	0.328	0.319	0.343	0.348	0.338
708.37	0.28	0.307	0.314	0.341	0.324	0.324	0.315	0.338	0.346	0.334
708.69	0.276	0.302	0.309	0.337	0.319	0.322	0.311	0.335	0.342	0.329
709.01	0.275	0.298	0.307	0.332	0.316	0.318	0.309	0.334	0.338	0.323
709.33	0.272	0.296	0.303	0.33	0.312	0.316	0.306	0.332	0.333	0.319
709.66	0.268	0.29	0.3	0.327	0.31	0.312	0.301	0.329	0.33	0.315
709.98	0.265	0.288	0.298	0.328	0.306	0.309	0.297	0.326	0.328	0.313
710.3	0.259	0.284	0.295	0.323	0.304	0.308	0.294	0.324	0.326	0.311
710.62	0.253	0.281	0.29	0.319	0.3	0.305	0.293	0.321	0.323	0.308
710.94	0.25	0.277	0.287	0.317	0.297	0.3	0.289	0.317	0.323	0.307

711.26	0.246	0.275	0.287	0.315	0.294	0.3	0.288	0.314	0.319	0.305
711.58	0.245	0.269	0.283	0.313	0.291	0.299	0.285	0.313	0.316	0.303
711.9	0.243	0.264	0.281	0.308	0.288	0.295	0.282	0.308	0.314	0.3
712.23	0.239	0.258	0.282	0.307	0.285	0.29	0.277	0.303	0.312	0.298
712.55	0.234	0.253	0.279	0.304	0.282	0.288	0.273	0.298	0.308	0.295
712.87	0.231	0.25	0.278	0.302	0.281	0.286	0.269	0.294	0.308	0.292
713.19	0.228	0.247	0.277	0.3	0.279	0.284	0.269	0.291	0.305	0.29
713.51	0.225	0.243	0.275	0.296	0.276	0.282	0.266	0.288	0.303	0.289
713.83	0.222	0.241	0.275	0.296	0.274	0.283	0.262	0.286	0.303	0.288
714.15	0.22	0.236	0.272	0.293	0.274	0.28	0.258	0.283	0.3	0.285
714.47	0.217	0.234	0.272	0.291	0.27	0.278	0.255	0.282	0.296	0.282
714.79	0.213	0.23	0.268	0.288	0.268	0.276	0.25	0.279	0.293	0.278
715.11	0.21	0.228	0.267	0.286	0.266	0.27	0.248	0.274	0.291	0.275
715.43	0.206	0.226	0.265	0.285	0.265	0.268	0.245	0.272	0.287	0.274
715.75	0.203	0.225	0.263	0.28	0.263	0.267	0.242	0.271	0.284	0.272
716.07	0.199	0.224	0.261	0.278	0.261	0.264	0.239	0.269	0.282	0.27
716.39	0.198	0.221	0.257	0.277	0.258	0.263	0.236	0.265	0.279	0.268
716.72	0.194	0.218	0.254	0.273	0.255	0.259	0.232	0.263	0.275	0.264
717.04	0.192	0.215	0.251	0.271	0.253	0.255	0.229	0.262	0.272	0.262
717.36	0.19	0.213	0.246	0.268	0.251	0.251	0.228	0.26	0.267	0.26
717.68	0.188	0.211	0.245	0.266	0.248	0.247	0.227	0.257	0.266	0.259
718	0.184	0.209	0.242	0.263	0.247	0.245	0.226	0.254	0.266	0.258
718.32	0.184	0.208	0.241	0.261	0.245	0.242	0.225	0.252	0.264	0.257
718.64	0.183	0.206	0.239	0.259	0.242	0.242	0.223	0.252	0.262	0.254
718.96	0.182	0.203	0.237	0.258	0.236	0.24	0.219	0.249	0.26	0.251
719.28	0.182	0.199	0.234	0.256	0.234	0.237	0.22	0.247	0.259	0.251
719.6	0.179	0.196	0.231	0.254	0.235	0.235	0.219	0.246	0.259	0.251
719.92	0.176	0.194	0.228	0.253	0.23	0.232	0.218	0.246	0.258	0.248
720.24	0.172	0.192	0.228	0.251	0.229	0.229	0.216	0.244	0.258	0.248
720.56	0.169	0.191	0.227	0.248	0.225	0.23	0.214	0.242	0.255	0.244
720.88	0.167	0.185	0.226	0.247	0.224	0.231	0.214	0.239	0.257	0.245
721.19	0.162	0.184	0.226	0.247	0.223	0.232	0.212	0.239	0.257	0.243
721.51	0.16	0.18	0.224	0.245	0.221	0.229	0.21	0.237	0.255	0.238
721.83	0.157	0.177	0.22	0.242	0.22	0.229	0.205	0.235	0.253	0.235
722.15	0.153	0.176	0.22	0.239	0.221	0.228	0.201	0.232	0.251	0.234
722.47	0.148	0.175	0.219	0.238	0.223	0.23	0.2	0.232	0.251	0.234
722.79	0.144	0.173	0.217	0.237	0.222	0.23	0.194	0.231	0.251	0.229
723.11	0.143	0.17	0.218	0.236	0.218	0.23	0.192	0.232	0.247	0.226
723.43	0.14	0.164	0.219	0.234	0.219	0.227	0.187	0.229	0.245	0.225

723.75	0.139	0.161	0.216	0.232	0.218	0.229	0.183	0.226	0.242	0.223
724.07	0.139	0.159	0.215	0.228	0.219	0.227	0.179	0.224	0.241	0.223
724.39	0.136	0.158	0.213	0.226	0.215	0.222	0.177	0.224	0.235	0.22
724.71	0.136	0.154	0.212	0.223	0.214	0.218	0.173	0.222	0.232	0.218
725.03	0.136	0.152	0.212	0.225	0.213	0.217	0.171	0.222	0.23	0.217
725.35	0.134	0.15	0.213	0.225	0.213	0.216	0.171	0.221	0.229	0.217
725.66	0.133	0.146	0.213	0.224	0.213	0.214	0.171	0.219	0.23	0.216
725.98	0.132	0.143	0.214	0.223	0.214	0.212	0.17	0.219	0.229	0.215
726.3	0.13	0.143	0.214	0.222	0.212	0.209	0.169	0.216	0.228	0.217
726.62	0.13	0.143	0.211	0.219	0.213	0.206	0.167	0.214	0.226	0.217
726.94	0.128	0.143	0.209	0.217	0.213	0.208	0.169	0.214	0.225	0.216
727.26	0.127	0.142	0.21	0.216	0.212	0.205	0.17	0.213	0.224	0.215
727.58	0.124	0.141	0.208	0.213	0.21	0.203	0.17	0.209	0.225	0.212
727.89	0.124	0.141	0.208	0.213	0.21	0.203	0.17	0.206	0.223	0.212
728.21	0.123	0.141	0.208	0.209	0.208	0.204	0.17	0.206	0.223	0.212
728.53	0.12	0.143	0.205	0.207	0.207	0.202	0.168	0.204	0.222	0.212
728.85	0.117	0.143	0.202	0.204	0.204	0.2	0.17	0.206	0.221	0.214
729.17	0.118	0.142	0.198	0.203	0.2	0.197	0.169	0.206	0.217	0.213
729.49	0.118	0.142	0.197	0.202	0.199	0.196	0.169	0.204	0.215	0.212
729.8	0.115	0.141	0.195	0.201	0.197	0.195	0.168	0.202	0.215	0.21
730.12	0.114	0.14	0.194	0.201	0.197	0.196	0.167	0.203	0.215	0.21
730.44	0.115	0.137	0.191	0.201	0.197	0.195	0.165	0.203	0.215	0.208
730.76	0.115	0.136	0.188	0.201	0.194	0.194	0.164	0.205	0.215	0.208
731.08	0.115	0.136	0.188	0.203	0.193	0.194	0.162	0.206	0.214	0.204
731.39	0.113	0.135	0.186	0.204	0.191	0.193	0.161	0.205	0.216	0.202
731.71	0.111	0.135	0.184	0.205	0.189	0.192	0.162	0.204	0.215	0.201
732.03	0.111	0.133	0.183	0.205	0.187	0.191	0.162	0.204	0.216	0.201
732.35	0.111	0.132	0.183	0.203	0.187	0.194	0.159	0.2	0.216	0.198
732.67	0.11	0.133	0.185	0.202	0.187	0.195	0.157	0.199	0.216	0.197
732.98	0.11	0.134	0.182	0.202	0.186	0.192	0.155	0.197	0.217	0.195
733.3	0.109	0.132	0.182	0.201	0.186	0.192	0.155	0.196	0.215	0.193
733.62	0.108	0.132	0.181	0.2	0.186	0.191	0.154	0.194	0.214	0.192
733.94	0.107	0.133	0.182	0.198	0.184	0.191	0.152	0.19	0.213	0.192
734.25	0.106	0.131	0.182	0.195	0.186	0.193	0.151	0.187	0.212	0.191
734.57	0.104	0.13	0.181	0.193	0.187	0.192	0.15	0.187	0.21	0.193
734.89	0.102	0.129	0.183	0.191	0.189	0.19	0.148	0.187	0.208	0.192
735.21	0.103	0.128	0.184	0.19	0.188	0.188	0.147	0.186	0.207	0.188
735.52	0.102	0.125	0.182	0.188	0.187	0.188	0.142	0.183	0.204	0.186
735.84	0.101	0.125	0.182	0.188	0.185	0.184	0.142	0.185	0.202	0.185

736.16	0.101	0.122	0.179	0.189	0.184	0.184	0.143	0.183	0.201	0.183
736.47	0.098	0.119	0.179	0.187	0.183	0.187	0.141	0.183	0.199	0.183
736.79	0.097	0.118	0.178	0.184	0.184	0.186	0.141	0.184	0.199	0.184
737.11	0.094	0.117	0.175	0.182	0.183	0.184	0.14	0.182	0.199	0.181
737.43	0.092	0.117	0.177	0.181	0.182	0.182	0.142	0.185	0.198	0.179
737.74	0.09	0.116	0.179	0.183	0.181	0.178	0.141	0.185	0.195	0.179
738.06	0.089	0.116	0.179	0.182	0.179	0.18	0.142	0.184	0.194	0.178
738.38	0.089	0.115	0.178	0.184	0.177	0.18	0.142	0.183	0.196	0.178
738.69	0.089	0.114	0.175	0.183	0.177	0.18	0.139	0.18	0.193	0.178
739.01	0.085	0.113	0.176	0.185	0.176	0.177	0.141	0.179	0.193	0.176
739.33	0.083	0.11	0.176	0.184	0.179	0.181	0.141	0.175	0.19	0.174
739.64	0.081	0.109	0.176	0.178	0.177	0.18	0.139	0.173	0.188	0.173
739.96	0.082	0.109	0.178	0.179	0.178	0.177	0.138	0.172	0.189	0.174
740.28	0.081	0.108	0.176	0.182	0.175	0.177	0.138	0.169	0.186	0.171
740.59	0.081	0.107	0.178	0.183	0.174	0.178	0.137	0.169	0.186	0.169
740.91	0.078	0.107	0.176	0.184	0.172	0.178	0.135	0.169	0.183	0.169
741.22	0.076	0.109	0.173	0.183	0.168	0.179	0.135	0.168	0.186	0.169
741.54	0.076	0.109	0.173	0.182	0.164	0.173	0.133	0.166	0.184	0.167
741.86	0.076	0.108	0.172	0.18	0.165	0.175	0.133	0.168	0.183	0.169
742.17	0.076	0.106	0.173	0.176	0.166	0.178	0.133	0.169	0.184	0.169
742.49	0.077	0.107	0.173	0.177	0.168	0.178	0.134	0.173	0.186	0.171
742.81	0.076	0.107	0.171	0.176	0.167	0.174	0.133	0.171	0.186	0.171
743.12	0.076	0.107	0.171	0.178	0.169	0.175	0.134	0.173	0.187	0.171
743.44	0.075	0.107	0.171	0.177	0.167	0.176	0.135	0.173	0.185	0.168
743.75	0.075	0.104	0.172	0.174	0.167	0.178	0.133	0.171	0.185	0.168
744.07	0.075	0.102	0.173	0.172	0.168	0.18	0.132	0.17	0.183	0.17
744.38	0.078	0.102	0.169	0.171	0.168	0.18	0.136	0.169	0.185	0.169
744.7	0.08	0.098	0.169	0.173	0.169	0.182	0.135	0.169	0.183	0.168
745.02	0.08	0.097	0.171	0.174	0.173	0.183	0.132	0.168	0.185	0.17
745.33	0.079	0.094	0.169	0.172	0.172	0.182	0.13	0.166	0.181	0.168
745.65	0.075	0.095	0.168	0.173	0.174	0.176	0.131	0.167	0.18	0.167
745.96	0.075	0.094	0.167	0.171	0.171	0.176	0.13	0.163	0.178	0.167
746.28	0.076	0.094	0.168	0.174	0.17	0.174	0.127	0.164	0.179	0.167
746.59	0.076	0.093	0.167	0.173	0.167	0.17	0.125	0.164	0.179	0.17
746.91	0.075	0.092	0.163	0.169	0.166	0.169	0.121	0.166	0.178	0.169
747.22	0.075	0.096	0.163	0.17	0.167	0.166	0.121	0.169	0.178	0.168
747.54	0.075	0.096	0.159	0.171	0.164	0.159	0.12	0.171	0.176	0.167
747.85	0.075	0.095	0.162	0.173	0.165	0.157	0.117	0.169	0.176	0.168
748.17	0.074	0.097	0.159	0.173	0.167	0.154	0.114	0.166	0.174	0.166

748.48	0.072	0.098	0.16	0.17	0.164	0.157	0.116	0.166	0.171	0.165
748.8	0.072	0.101	0.157	0.171	0.163	0.153	0.117	0.167	0.171	0.164
749.11	0.073	0.097	0.159	0.173	0.161	0.157	0.113	0.163	0.17	0.165
749.43	0.074	0.095	0.157	0.172	0.164	0.154	0.112	0.164	0.17	0.163
749.74	0.073	0.095	0.154	0.171	0.161	0.156	0.116	0.162	0.169	0.161
750.06	0.073	0.093	0.155	0.173	0.162	0.16	0.117	0.159	0.165	0.158
750.37	0.074	0.094	0.155	0.174	0.162	0.157	0.119	0.155	0.163	0.158
750.69	0.073	0.089	0.155	0.17	0.158	0.156	0.118	0.152	0.162	0.157
751	0.072	0.089	0.156	0.168	0.157	0.158	0.118	0.149	0.164	0.157
751.32	0.07	0.086	0.155	0.168	0.154	0.159	0.116	0.147	0.164	0.156
751.63	0.069	0.084	0.156	0.166	0.152	0.159	0.119	0.15	0.166	0.155
751.95	0.07	0.081	0.154	0.169	0.153	0.159	0.117	0.149	0.168	0.154
752.26	0.069	0.078	0.155	0.167	0.151	0.162	0.116	0.145	0.169	0.153
752.58	0.071	0.08	0.154	0.166	0.149	0.162	0.118	0.147	0.17	0.154
752.89	0.069	0.081	0.152	0.166	0.15	0.166	0.117	0.145	0.17	0.153
753.2	0.068	0.079	0.156	0.166	0.15	0.163	0.115	0.146	0.169	0.155
753.52	0.067	0.079	0.153	0.167	0.151	0.158	0.114	0.146	0.172	0.156
753.83	0.066	0.077	0.152	0.167	0.151	0.162	0.116	0.148	0.174	0.158
754.15	0.063	0.079	0.147	0.168	0.154	0.163	0.119	0.149	0.175	0.16
754.46	0.064	0.079	0.145	0.168	0.155	0.162	0.119	0.149	0.173	0.159
754.77	0.063	0.082	0.146	0.163	0.158	0.163	0.12	0.15	0.173	0.158
755.09	0.061	0.082	0.144	0.164	0.16	0.161	0.12	0.148	0.173	0.155
755.4	0.059	0.083	0.141	0.159	0.161	0.16	0.122	0.151	0.168	0.154
755.72	0.056	0.082	0.141	0.159	0.163	0.156	0.119	0.151	0.165	0.152
756.03	0.051	0.079	0.141	0.158	0.164	0.156	0.117	0.15	0.166	0.149
756.34	0.049	0.08	0.144	0.156	0.163	0.152	0.12	0.153	0.165	0.148
756.66	0.049	0.082	0.142	0.156	0.164	0.155	0.122	0.153	0.165	0.147
756.97	0.047	0.082	0.145	0.153	0.163	0.155	0.124	0.153	0.166	0.145
757.28	0.048	0.084	0.144	0.154	0.166	0.154	0.122	0.152	0.163	0.143
757.6	0.052	0.083	0.148	0.152	0.162	0.152	0.118	0.153	0.161	0.14
757.91	0.05	0.08	0.15	0.154	0.162	0.154	0.115	0.152	0.161	0.142
758.22	0.053	0.077	0.148	0.158	0.161	0.153	0.117	0.152	0.16	0.141
758.54	0.055	0.076	0.149	0.158	0.161	0.154	0.115	0.155	0.159	0.145
758.85	0.055	0.074	0.149	0.158	0.16	0.153	0.114	0.153	0.16	0.145
759.16	0.058	0.074	0.149	0.156	0.16	0.153	0.115	0.153	0.16	0.149
759.48	0.062	0.076	0.151	0.157	0.157	0.151	0.116	0.152	0.157	0.147
759.79	0.064	0.075	0.15	0.156	0.157	0.15	0.115	0.149	0.156	0.148
760.1	0.063	0.074	0.152	0.156	0.157	0.149	0.11	0.148	0.155	0.149
760.42	0.065	0.074	0.148	0.156	0.157	0.149	0.112	0.149	0.153	0.151

760.73	0.063	0.074	0.151	0.154	0.152	0.149	0.111	0.147	0.152	0.15
761.04	0.06	0.073	0.153	0.159	0.154	0.151	0.111	0.144	0.154	0.15
761.35	0.061	0.073	0.153	0.156	0.156	0.149	0.113	0.142	0.154	0.148
761.67	0.06	0.074	0.153	0.154	0.156	0.149	0.11	0.142	0.153	0.152
761.98	0.059	0.074	0.154	0.155	0.154	0.151	0.111	0.14	0.153	0.155
762.29	0.058	0.07	0.155	0.155	0.154	0.15	0.111	0.14	0.154	0.155
762.61	0.058	0.072	0.155	0.157	0.153	0.15	0.112	0.142	0.154	0.153
762.92	0.059	0.071	0.154	0.157	0.155	0.15	0.113	0.144	0.152	0.154
763.23	0.057	0.071	0.153	0.16	0.153	0.153	0.112	0.147	0.153	0.156
763.54	0.057	0.07	0.152	0.162	0.154	0.153	0.113	0.147	0.151	0.157
763.86	0.056	0.07	0.151	0.161	0.155	0.153	0.11	0.149	0.152	0.156
764.17	0.056	0.07	0.15	0.162	0.157	0.153	0.113	0.152	0.154	0.157
764.48	0.058	0.07	0.15	0.162	0.156	0.152	0.115	0.154	0.155	0.159
764.79	0.057	0.071	0.15	0.163	0.156	0.153	0.116	0.157	0.156	0.16
765.1	0.057	0.069	0.15	0.165	0.156	0.154	0.117	0.159	0.155	0.158
765.42	0.058	0.07	0.152	0.162	0.155	0.155	0.117	0.162	0.155	0.157
765.73	0.059	0.071	0.152	0.162	0.154	0.157	0.115	0.162	0.155	0.156
766.04	0.058	0.068	0.148	0.163	0.154	0.159	0.116	0.163	0.155	0.156
766.35	0.056	0.066	0.149	0.161	0.152	0.159	0.116	0.161	0.158	0.156
766.66	0.056	0.066	0.148	0.16	0.153	0.156	0.115	0.159	0.157	0.155
766.98	0.056	0.068	0.147	0.158	0.153	0.154	0.114	0.16	0.158	0.153
767.29	0.057	0.064	0.148	0.158	0.152	0.155	0.118	0.159	0.157	0.152
767.6	0.054	0.064	0.147	0.161	0.151	0.153	0.118	0.157	0.157	0.152
767.91	0.051	0.062	0.146	0.155	0.152	0.152	0.117	0.157	0.154	0.149
768.22	0.052	0.061	0.146	0.153	0.151	0.15	0.115	0.153	0.15	0.148
768.53	0.052	0.064	0.144	0.151	0.149	0.147	0.115	0.153	0.15	0.149
768.85	0.05	0.061	0.141	0.152	0.151	0.144	0.116	0.152	0.149	0.147
769.16	0.049	0.063	0.141	0.154	0.152	0.143	0.118	0.15	0.149	0.149
769.47	0.05	0.064	0.144	0.153	0.153	0.142	0.118	0.149	0.146	0.149
769.78	0.049	0.066	0.143	0.156	0.155	0.143	0.118	0.152	0.145	0.15
770.09	0.048	0.065	0.145	0.155	0.153	0.145	0.12	0.152	0.144	0.151
770.4	0.047	0.063	0.143	0.154	0.151	0.146	0.122	0.153	0.146	0.152
770.71	0.047	0.064	0.144	0.152	0.151	0.145	0.121	0.152	0.144	0.151
771.03	0.048	0.06	0.145	0.147	0.149	0.15	0.114	0.152	0.141	0.151
771.34	0.051	0.061	0.145	0.152	0.145	0.153	0.113	0.152	0.142	0.149
771.65	0.05	0.061	0.143	0.152	0.144	0.156	0.113	0.156	0.14	0.149
771.96	0.05	0.055	0.145	0.154	0.143	0.155	0.112	0.153	0.14	0.146
772.27	0.051	0.057	0.141	0.153	0.144	0.154	0.111	0.15	0.139	0.144
772.58	0.048	0.054	0.141	0.152	0.143	0.152	0.111	0.151	0.139	0.142

772.89	0.047	0.056	0.143	0.153	0.146	0.154	0.112	0.15	0.142	0.141
773.2	0.048	0.054	0.141	0.147	0.143	0.152	0.112	0.146	0.142	0.144
773.51	0.046	0.056	0.14	0.146	0.141	0.151	0.11	0.145	0.14	0.146
773.82	0.048	0.055	0.142	0.15	0.142	0.155	0.108	0.145	0.139	0.144
774.13	0.047	0.057	0.148	0.155	0.144	0.156	0.107	0.146	0.144	0.146
774.44	0.045	0.055	0.149	0.158	0.146	0.155	0.11	0.148	0.148	0.147
774.75	0.046	0.056	0.146	0.158	0.148	0.151	0.113	0.149	0.149	0.147
775.07	0.048	0.056	0.145	0.159	0.149	0.153	0.111	0.149	0.152	0.144
775.38	0.047	0.062	0.144	0.154	0.15	0.156	0.113	0.151	0.157	0.143
775.69	0.045	0.064	0.149	0.157	0.147	0.16	0.112	0.153	0.161	0.146
776	0.047	0.064	0.146	0.156	0.147	0.161	0.111	0.15	0.163	0.142
776.31	0.046	0.065	0.139	0.154	0.14	0.159	0.11	0.147	0.161	0.141
776.62	0.047	0.067	0.144	0.157	0.141	0.163	0.111	0.148	0.158	0.137
776.93	0.047	0.063	0.142	0.157	0.14	0.163	0.114	0.147	0.159	0.133
777.24	0.046	0.064	0.136	0.155	0.138	0.157	0.117	0.144	0.155	0.131
777.55	0.046	0.064	0.132	0.153	0.138	0.154	0.111	0.142	0.149	0.131
777.86	0.044	0.069	0.127	0.155	0.141	0.15	0.112	0.143	0.147	0.132
778.17	0.042	0.067	0.125	0.152	0.14	0.156	0.111	0.136	0.148	0.133
778.48	0.039	0.067	0.125	0.151	0.14	0.151	0.117	0.134	0.146	0.136
778.79	0.034	0.062	0.123	0.153	0.139	0.149	0.115	0.127	0.141	0.137
779.1	0.038	0.058	0.124	0.147	0.143	0.151	0.115	0.129	0.138	0.139
779.41	0.04	0.061	0.125	0.146	0.146	0.148	0.114	0.132	0.133	0.145
779.71	0.04	0.059	0.129	0.147	0.152	0.153	0.114	0.135	0.133	0.148
780.02	0.042	0.057	0.129	0.145	0.15	0.152	0.113	0.129	0.134	0.149

Absorbance values of Kelly Green A_F from 30-39 minutes for Part II of Phase III

λ	1	2	3	4	5	6	7
380	0.215	0.254	0.278	0.227	0.279	0.257	0.237
390	0.21	0.254	0.296	0.261	0.269	0.286	0.256
400	0.23	0.275	0.315	0.258	0.289	0.302	0.277
410	0.259	0.288	0.332	0.282	0.297	0.322	0.283
420	0.269	0.301	0.345	0.307	0.324	0.341	0.3
430	0.278	0.314	0.342	0.317	0.323	0.338	0.307
440	0.283	0.311	0.339	0.323	0.327	0.346	0.303
450	0.295	0.313	0.355	0.328	0.334	0.352	0.314
460	0.322	0.346	0.376	0.35	0.346	0.38	0.333
470	0.355	0.377	0.405	0.376	0.371	0.406	0.362
480	0.387	0.409	0.432	0.404	0.391	0.431	0.389

490	0.405	0.432	0.452	0.423	0.403	0.457	0.405
500	0.419	0.435	0.458	0.434	0.405	0.466	0.407
510	0.424	0.426	0.45	0.429	0.399	0.458	0.404
520	0.413	0.412	0.432	0.412	0.382	0.444	0.381
530	0.401	0.394	0.409	0.391	0.365	0.431	0.361
540	0.354	0.343	0.359	0.341	0.315	0.38	0.317
550	0.27	0.254	0.278	0.249	0.235	0.306	0.237
560	0.183	0.154	0.18	0.149	0.159	0.22	0.152
570	0.13	0.092	0.117	0.082	0.112	0.169	0.1
580	0.103	0.059	0.083	0.051	0.088	0.147	0.07
590	0.088	0.044	0.066	0.033	0.07	0.128	0.048
600	0.078	0.035	0.057	0.018	0.057	0.12	0.033
610	0.074	0.03	0.05	0.013	0.046	0.11	0.023
620	0.076	0.03	0.05	0.015	0.047	0.112	0.021
630	0.083	0.029	0.05	0.02	0.052	0.116	0.027
640	0.091	0.03	0.051	0.027	0.06	0.114	0.03
650	0.098	0.033	0.055	0.031	0.069	0.119	0.034
660	0.102	0.035	0.054	0.026	0.075	0.127	0.035
670	0.106	0.04	0.062	0.034	0.085	0.133	0.037
680	0.107	0.046	0.06	0.038	0.091	0.137	0.039
690	0.11	0.045	0.064	0.041	0.087	0.139	0.043
700	0.115	0.052	0.068	0.042	0.091	0.142	0.05
710	0.123	0.053	0.068	0.038	0.083	0.142	0.043
720	0.123	0.047	0.072	0.033	0.072	0.141	0.039
730	0.126	0.041	0.065	0.028	0.064	0.137	0.04
740	0.128	0.03	0.062	0.01	0.056	0.138	0.036
750	0.125	0.023	0.061	0.012	0.055	0.128	0.025
760	0.124	0.015	0.056	0.022	0.057	0.129	0.035
770	0.14	0.028	0.061	0.019	0.059	0.138	0.037
780	0.132	0.033	0.059	0.034	0.07	0.138	0.04

Absorbance values for Orange A_F for Run 1-7 for Phase IV

Red Average of the Average Abs	Red UCL	Red LCL
0.2993375	0.400940446	0.197734554
0.3058825	0.409800042	0.201964958
0.319055	0.428327849	0.209782151
0.33185	0.441741942	0.221958058
0.3428425	0.455345483	0.230339517
0.348465	0.460742009	0.236187991
0.356185	0.470634624	0.241735376

0.3759625	0.494593436	0.257331564
0.40406	0.52869949	0.27942051
0.4390125	0.568631823	0.309393177
0.4782825	0.612138376	0.344426624
0.5037425	0.639145559	0.368339441
0.512925	0.648872187	0.376977813
0.5245625	0.661223264	0.387901736
0.5286625	0.664000229	0.393324771
0.502975	0.636156259	0.369793741
0.448715	0.579954802	0.317475198
0.4075525	0.53510969	0.27999531
0.38003	0.500191459	0.259868541
0.3284225	0.438961113	0.217883887
0.24693	0.346474117	0.147385883
0.1746225	0.265217605	0.084027395
0.135635	0.215836395	0.055433605
0.1164025	0.188515797	0.044289203
0.10829	0.178828062	0.037751938
0.1044925	0.175440285	0.033544715
0.1043775	0.176486972	0.032268028
0.1034025	0.175636991	0.031168009
0.10398	0.175883781	0.032076219
0.1045975	0.175798395	0.033396605
0.1036725	0.173283249	0.034061751
0.102472778	0.171995768	0.032949787
0.1031725	0.170590159	0.035754841
0.1023625	0.16863006	0.03609494
0.104205	0.1706924	0.0377176
0.102675	0.169988751	0.035361249
0.1024625	0.171316424	0.033608576
0.1021125	0.173039467	0.031185533
0.100933611	0.172972469	0.028894753
0.1006425	0.171751785	0.029533215
0.0991175	0.169912155	0.028322845

The absorbance values, upper confidence bound and lower confidence bounds for all Red shirt for Phase IV

	Average Absorbance		UCL	LCL	UCL	LCL
λ	I	J	I		J	
380	0.182325	0.1899	0.26127	0.10338	0.22767	0.15213
390	0.1726	0.180175	0.25005	0.09515	0.2204	0.13995
400	0.15915	0.1684	0.23452	0.08378	0.21387	0.12293
410	0.14395	0.1527	0.2222	0.0657	0.20281	0.10259
420	0.131825	0.138225	0.21095	0.0527	0.18768	0.08877
430	0.12235	0.1245	0.20374	0.04096	0.17552	0.07348
440	0.114575	0.1164	0.19518	0.03397	0.17072	0.06208
450	0.11115	0.11265	0.18885	0.03345	0.16667	0.05863
460	0.111125	0.113375	0.18907	0.03318	0.16907	0.05768
470	0.11195	0.117975	0.19054	0.03336	0.17511	0.06084
480	0.11525	0.12345	0.19062	0.03988	0.18238	0.06452
490	0.1229	0.13115	0.19718	0.04862	0.18727	0.07503
500	0.13425	0.141025	0.21026	0.05824	0.19328	0.08877
510	0.144475	0.153825	0.22018	0.06877	0.20337	0.10428
520	0.157	0.1685	0.23133	0.08267	0.21986	0.11714
530	0.17405	0.18715	0.24805	0.10005	0.23884	0.13546
540	0.193825	0.208525	0.26896	0.11869	0.26254	0.15451
550	0.2135	0.231975	0.29161	0.13539	0.28619	0.17776
560	0.232275	0.2527	0.31594	0.14861	0.30797	0.19743
570	0.2533	0.27445	0.34472	0.16188	0.33332	0.21558
580	0.276425	0.2961	0.37361	0.17924	0.35369	0.23851
590	0.277975	0.2984	0.37508	0.18087	0.35614	0.24066
600	0.296925	0.320525	0.40562	0.18823	0.37774	0.26331
610	0.29055	0.31685	0.39946	0.18164	0.37593	0.25777
620	0.286975	0.31425	0.39213	0.18182	0.37636	0.25214
630	0.285725	0.314375	0.38795	0.1835	0.37918	0.24957
640	0.282775	0.312675	0.38548	0.18007	0.3786	0.24675
650	0.264675	0.292525	0.36275	0.1666	0.3588	0.22625
660	0.230275	0.254825	0.32	0.14055	0.31931	0.19034
670	0.189	0.2092	0.27465	0.10335	0.27418	0.14422
680	0.147725	0.163775	0.23142	0.06403	0.22753	0.10002
690	0.11775	0.129725	0.2035	0.032	0.19583	0.06362
700	0.100975	0.10985	0.18674	0.01521	0.1767	0.043
710	0.09185	0.098275	0.17313	0.01057	0.16357	0.03298
720	0.0873	0.0948	0.16674	0.00786	0.15753	0.03207
730	0.086175	0.091625	0.16263	0.00972	0.14899	0.03426
740	0.08545	0.09375	0.15526	0.01564	0.14618	0.04132

750	0.0836	0.093925	0.15247	0.01473	0.14146	0.04639
760	0.0822	0.093275	0.15395	0.01045	0.13693	0.04962
770	0.0821	0.092975	0.15469	0.00951	0.13831	0.04764
780	0.0801	0.094725	0.15131	0.00889	0.14169	0.04776

The absorbance values, upper confidence bound and lower confidence bounds for Royal shirt I and J for Phase IV

	Gold FRONT			Gold BACK		
Wavelength	Average of the Averages	UCL	LCL	Average of the Averages	UCL	LCL
380	0.22181	0.28228	0.16134	0.21754	0.26425	0.17083
390	0.23148	0.28815	0.17481	0.22598	0.26992	0.18204
400	0.24397	0.30889	0.17905	0.23706	0.28443	0.18969
410	0.2565	0.32869	0.18431	0.24946	0.29784	0.20108
420	0.26609	0.33806	0.19412	0.2605	0.30817	0.21283
430	0.26983	0.34257	0.19709	0.2636	0.31121	0.21599
440	0.26939	0.34013	0.19865	0.26202	0.30736	0.21668
450	0.26067	0.32796	0.19338	0.25055	0.29311	0.20799
460	0.24195	0.30411	0.17979	0.23267	0.26931	0.19603
470	0.22322	0.28193	0.16451	0.21526	0.25342	0.1771
480	0.20405	0.26218	0.14592	0.19543	0.23515	0.15571
490	0.18303	0.2333	0.13276	0.17543	0.2113	0.13956
500	0.16097	0.20294	0.119	0.15424	0.18623	0.12225
510	0.14036	0.17596	0.10476	0.13477	0.1642	0.10534
520	0.12271	0.15472	0.0907	0.11809	0.14798	0.0882
530	0.1121	0.14488	0.07932	0.104	0.13122	0.07678
540	0.10492	0.13559	0.07425	0.0963	0.12532	0.06728
550	0.10205	0.12924	0.07486	0.09314	0.12294	0.06334
560	0.0982	0.12273	0.07367	0.09129	0.1199	0.06268
570	0.09587	0.11738	0.07436	0.09153	0.12014	0.06292
580	0.09315	0.11178	0.07452	0.08964	0.11722	0.06206
590	0.09213	0.11062	0.07364	0.08904	0.11744	0.06064
600	0.09064	0.11157	0.06971	0.08801	0.11724	0.05878
610	0.08798	0.10979	0.06617	0.0858	0.11482	0.05678
620	0.08665	0.10827	0.06503	0.08465	0.11282	0.05648
630	0.08519	0.10749	0.06289	0.08302	0.10982	0.05622
640	0.08593	0.10997	0.06189	0.08159	0.10781	0.05537
650	0.08594	0.11076	0.06112	0.07907	0.10611	0.05203

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The OR function results for the six comparisons of the Kelly Green shirts

Wavelength	1	2	3	4	5	6	7
380	0.204	0.183	0.248	0.209	0.212	0.187	0.173
390	0.220	0.197	0.249	0.227	0.221	0.199	0.182
400	0.233	0.211	0.261	0.234	0.242	0.222	0.187
410	0.249	0.224	0.279	0.247	0.255	0.231	0.207
420	0.248	0.235	0.294	0.258	0.261	0.244	0.211
430	0.261	0.239	0.306	0.255	0.261	0.248	0.221
440	0.267	0.250	0.313	0.266	0.273	0.260	0.233
450	0.282	0.265	0.331	0.280	0.289	0.279	0.253
460	0.312	0.290	0.359	0.313	0.309	0.297	0.271
470	0.349	0.326	0.405	0.349	0.345	0.332	0.313
480	0.392	0.367	0.445	0.394	0.388	0.370	0.359
490	0.424	0.395	0.473	0.425	0.416	0.392	0.387
500	0.438	0.404	0.484	0.435	0.423	0.401	0.405
510	0.454	0.424	0.498	0.458	0.437	0.414	0.416
520	0.460	0.435	0.511	0.473	0.448	0.415	0.416
530	0.426	0.401	0.485	0.444	0.418	0.390	0.381

540	0.369	0.336	0.415	0.374	0.347	0.335	0.322
550	0.325	0.284	0.363	0.323	0.294	0.291	0.280
560	0.299	0.255	0.332	0.287	0.259	0.263	0.254
570	0.265	0.211	0.280	0.244	0.213	0.217	0.209
580	0.210	0.149	0.195	0.169	0.144	0.137	0.134
590	0.169	0.095	0.124	0.104	0.080	0.071	0.073
600	0.153	0.068	0.094	0.076	0.056	0.041	0.044
610	0.145	0.058	0.074	0.055	0.046	0.033	0.034
620	0.143	0.051	0.067	0.047	0.043	0.034	0.038
630	0.147	0.050	0.068	0.042	0.040	0.034	0.040
640	0.151	0.049	0.071	0.040	0.041	0.036	0.040
650	0.155	0.050	0.075	0.037	0.040	0.043	0.044
660	0.156	0.041	0.076	0.030	0.034	0.044	0.048
670	0.157	0.036	0.075	0.028	0.030	0.045	0.052
680	0.159	0.031	0.068	0.022	0.028	0.043	0.054
690	0.155	0.026	0.064	0.018	0.027	0.034	0.042
700	0.154	0.025	0.065	0.017	0.030	0.029	0.041
710	0.160	0.033	0.062	0.019	0.036	0.027	0.041
720	0.154	0.031	0.061	0.022	0.041	0.027	0.031
730	0.151	0.031	0.058	0.026	0.039	0.024	0.030
740	0.148	0.023	0.060	0.025	0.033	0.033	0.029
750	0.141	0.020	0.059	0.023	0.033	0.040	0.032
760	0.140	0.018	0.058	0.023	0.029	0.033	0.018
770	0.143	0.012	0.048	0.014	0.032	0.022	0.005
780	0.154	0.012	0.048	0.007	0.023	0.031	0.013

Absorbance values for Red Section 1 for Run 1-7 for Phase V

Gold Average of Average Abs	Gold UCL	Gold LCL
0.244373333	0.299183094	0.189563573
0.256193333	0.314714871	0.197671796
0.269246667	0.330829199	0.207664135
0.281916667	0.347727193	0.21610614
0.292343333	0.362017684	0.222668983
0.296976667	0.368809322	0.225144012
0.295653333	0.367528336	0.22377833
0.287303333	0.357157972	0.217448695
0.271543333	0.337902711	0.205183956
0.253856667	0.315822917	0.191890417

0.23168	0.287412458	0.175947542
0.210113333	0.259974007	0.16025266
0.186366667	0.229313986	0.143419347
0.16445	0.20103675	0.12786325
0.144966667	0.177267108	0.112666225
0.131533333	0.161355569	0.101711098
0.121983333	0.150407182	0.093559484
0.11562	0.143221797	0.088018203
0.111476667	0.138875973	0.08407736
0.108553333	0.135518965	0.081587702
0.106576667	0.133359966	0.079793368
0.104446667	0.131467704	0.07742563
0.102526667	0.129698825	0.075354508
0.09995	0.126509253	0.073390747
0.09944	0.126339815	0.072540185
0.098863333	0.126228282	0.071498385
0.098386667	0.125550283	0.071223051
0.09767	0.124710954	0.070629046
0.09522	0.12286582	0.06757418
0.09543	0.123395527	0.067464473
0.094916667	0.122794943	0.06703839
0.093076667	0.12127957	0.064873763
0.090996667	0.119326938	0.062666396
0.090136667	0.118962042	0.061311291
0.090086667	0.118480563	0.06169277
0.091482963	0.119660906	0.063305019
0.090226667	0.118913634	0.0615397
0.089183333	0.117621999	0.060744668
0.087776667	0.117322188	0.058231145
0.086176667	0.115617986	0.056735347
0.085233333	0.114028677	0.056437989

The absorbance values, upper confidence bound and lower confidence bounds for all front squares of the Gold Shirts for Phase V

Wavelength	Average of Average Abs		UCL	LCL	UCL	LCL
	G	H	G		H	
380	0.271233333	0.249733333	0.322993	0.219474	0.30551	0.19395
390	0.2527	0.226533333	0.286615	0.218785	0.27577	0.1773
400	0.2478	0.2146	0.28195	0.21365	0.27353	0.15567
410	0.256833333	0.213666667	0.294135	0.219531	0.2763	0.15103
420	0.265433333	0.218566667	0.297949	0.232918	0.27882	0.15832
430	0.265233333	0.2144	0.299624	0.230843	0.27484	0.15396
440	0.254933333	0.205833333	0.298504	0.211363	0.26586	0.1458
450	0.242366667	0.194433333	0.295782	0.188951	0.24696	0.1419
460	0.219133333	0.174533333	0.274419	0.163847	0.2161	0.13297
470	0.194233333	0.148366667	0.256403	0.132064	0.18005	0.11668
480	0.171366667	0.124666667	0.233157	0.109576	0.14442	0.10491
490	0.158766667	0.1136	0.222017	0.095516	0.12875	0.09845
500	0.1523	0.111766667	0.214632	0.089968	0.12696	0.09657
510	0.149433333	0.111633333	0.205872	0.092994	0.12851	0.09476
520	0.150033333	0.112066667	0.199313	0.100754	0.1274	0.09673
530	0.154166667	0.116833333	0.197248	0.111086	0.13058	0.10309
540	0.160633333	0.121266667	0.203875	0.117391	0.12857	0.11396
550	0.175166667	0.127633333	0.222056	0.128277	0.13313	0.12214
560	0.192566667	0.140233333	0.237469	0.147664	0.15665	0.12382
570	0.2167	0.160933333	0.265812	0.167588	0.1956	0.12627
580	0.240266667	0.1828	0.301201	0.179332	0.23479	0.13081
590	0.2699	0.211633333	0.345587	0.194213	0.28116	0.14211
600	0.3155	0.2535	0.405134	0.225866	0.35142	0.15558
610	0.350466667	0.286433333	0.450856	0.250077	0.40304	0.16982
620	0.359833333	0.299166667	0.464598	0.255068	0.42042	0.17791
630	0.367066667	0.307133333	0.474798	0.259335	0.42772	0.18655
640	0.3643	0.3076	0.465334	0.263266	0.42507	0.19013
650	0.374166667	0.3195	0.469227	0.279107	0.43957	0.19943
660	0.4373	0.384133333	0.533375	0.341225	0.51927	0.24899
670	0.5072	0.4593	0.59585	0.41855	0.60294	0.31566
680	0.517866667	0.471633333	0.607542	0.428192	0.6192	0.32407
690	0.456666667	0.402933333	0.550966	0.362368	0.53326	0.27261
700	0.326766667	0.2737	0.406404	0.24713	0.37274	0.17466
710	0.2273	0.178966667	0.274626	0.179974	0.24907	0.10886

720	0.179366667	0.136333333	0.210625	0.148108	0.18581	0.08686
730	0.1536	0.109466667	0.186544	0.120656	0.14782	0.07111
740	0.140266667	0.093566667	0.17733	0.103203	0.12559	0.06154
750	0.137733333	0.087833333	0.179611	0.095856	0.11597	0.0597
760	0.129066667	0.078666667	0.169441	0.088692	0.10928	0.04806
770	0.129933333	0.071366667	0.163768	0.096098	0.09745	0.04529
780	0.126033333	0.066133333	0.151751	0.100315	0.09521	0.03705

The absorbance values, upper confidence bound and lower confidence bounds for the front of Kelly Green G and H for Phase V

	Gold Section 2			Kelly Green Section 2		
Wavelength	Average of Average Abs	UCL	LCL	Average of Average Abs	UCL	LCL
380	0.24514	0.29879	0.19149	0.2697	0.36624	0.17316
390	0.25755	0.31376	0.20134	0.24064	0.31848	0.1628
400	0.27054	0.33011	0.21097	0.22986	0.30357	0.15615
410	0.28376	0.34674	0.22078	0.23299	0.30913	0.15685
420	0.29469	0.36184	0.22754	0.23819	0.31415	0.16223
430	0.29936	0.36699	0.23173	0.23591	0.31338	0.15844
440	0.29813	0.36723	0.22903	0.22552	0.30068	0.15036
450	0.29011	0.35774	0.22248	0.20971	0.27755	0.14187
460	0.2743	0.34042	0.20818	0.18551	0.24322	0.1278
470	0.25664	0.31995	0.19333	0.15743	0.20602	0.10884
480	0.23426	0.29268	0.17584	0.13037	0.17136	0.08938
490	0.2125	0.26583	0.15917	0.11374	0.15237	0.07511
500	0.1883	0.23548	0.14112	0.1056	0.14681	0.06439
510	0.16588	0.20729	0.12447	0.10271	0.14673	0.05869
520	0.14613	0.18393	0.10833	0.10247	0.14977	0.05517
530	0.13246	0.16728	0.09764	0.10608	0.15603	0.05613
540	0.12276	0.15632	0.0892	0.11318	0.1628	0.06356
550	0.11629	0.14819	0.08439	0.12721	0.17703	0.07739
560	0.11223	0.14383	0.08063	0.14922	0.20585	0.09259
570	0.10933	0.14052	0.07814	0.17805	0.25203	0.10407
580	0.10778	0.13799	0.07757	0.20761	0.3016	0.11362
590	0.10587	0.13597	0.07577	0.24327	0.35979	0.12675
600	0.10395	0.13388	0.07402	0.29506	0.43999	0.15013
610	0.10144	0.13004	0.07284	0.3341	0.50161	0.16659

620	0.10102	0.12993	0.07211	0.34655	0.52083	0.17227
630	0.10044	0.13049	0.07039	0.35316	0.52756	0.17876
640	0.10001	0.12992	0.0701	0.35313	0.52279	0.18347
650	0.099	0.12824	0.06976	0.36453	0.53095	0.19811
660	0.09652	0.12656	0.06648	0.42731	0.59705	0.25757
670	0.09695	0.1274	0.0665	0.4981	0.66641	0.32979
680	0.09657	0.12549	0.06765	0.50916	0.67619	0.34213
690	0.09518	0.12446	0.0659	0.44464	0.61785	0.27143
700	0.09302	0.12255	0.06349	0.31315	0.45887	0.16743
710	0.09213	0.12134	0.06292	0.20781	0.30129	0.11433
720	0.09204	0.12192	0.06216	0.15556	0.2163	0.09482
730	0.09361	0.12138	0.06584	0.1241	0.1695	0.0787
740	0.09261	0.1205	0.06472	0.10703	0.14963	0.06443
750	0.0916	0.11923	0.06397	0.09808	0.14039	0.05577
760	0.09027	0.11948	0.06106	0.08976	0.13231	0.04721
770	0.08905	0.11767	0.06043	0.08344	0.1283	0.03858
780	0.08763	0.11608	0.05918	0.07978	0.12609	0.03347

The absorbance values, upper confidence bound and lower confidence bounds of Section 2 for Gold and Kelly Green

Red		
Section 1- Section 2	Section 1- Section 3	Section 2 - Section 3
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE

[illegible]

The OR functions results for the three comparisons of the Red shirts