# การพัฒนาระบบการจัดการสีสำหรับการผลิตภาพปรู๊ฟจากเครื่องถ่ายเอกสารชนิดสอดสีแทนภาพปรู๊ฟออฟเซต



นางกุนที กรีประเสริฐกุล

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาเทคโนโลยีทางภาพ
ภาควิชาวิทยาศาสตร์ทางภาพถ่ายและเทคโนโลยีทางการพิมพ์
คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2542
ISBN 974-333-964-7

# DEVELOPMENT OF COLOUR MANAGEMENT SYSTEM FOR PRODUCING A PROOF FROM COLOUR COPIER AS AN OFFSET PROOF

**Mrs. Kunnatee Kreprasertkul**



A Thesis Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Science in Imaging Technology

Department of Photographic Science and Printing Technology

Faculty of Science

Chulalongkorn University

Academic Year 1999

ISBN 974-333-964-7

| | |
|---|---|
| Thesis Title | **Development of Colour Management System for Producing a Proof from Colour Copier as an Offset Proof** |
| By | **Mrs. Kunnatee Kreprasertkul** |
| Department | **Photographic Science and Printing Technology** |
| Thesis Advisors | **Associate Prof. Pontawee Pungrassamee, M.S.** |
| Thesis Co-advisors | **Associate Prof. Aran Hansuebsai, Ph.D.** |

---

Accepted by the Faculty of Science, Chulalongkorn University in Partial Fulfillment of the Requrement for the Master's Degree of Science

........................................... Dean of Faculty of Science

( Associate Professor Wanchai Phothiphichitr, M.D.)

**Thesis Committee**

.............................................Chairman

(Professor Suda Kiatkamjornwong, Ph.D.)

.............................................Thesis Advisor

(Associate Professor Pontawee Pungrassamee, M.S. )

.............................................Thesis Co-advisor

( Associate Professor Aran Hansuebsai, Ph.D.)

.............................................Member

( Professor Yasushi Hoshino, Ph.D. )

.............................................Member

( Mr. Yujiro Ando, M.S. )

กุนที กรีประเสริฐกุล : การพัฒนาระบบการจัดการสีสำหรับการผลิตภาพปรู๊ฟจากเครื่องถ่ายเอกสารชนิดสอดสีแทนภาพปรู๊ฟออฟเซต , อ.ที่ปรึกษา : รศ. พรทวี พึ่งรัศมี และ : รศ.ดร. อรัญ หาญสืบสาย , 147 หน้า , ISBN 974-333-964-7

การผลิตภาพสีด้วยเครื่องถ่ายเอกสารชนิดสอดสีเพื่อให้ได้สีใกล้เคียงกับภาพปรู๊ฟออฟเซต จำเป็นต้องมีระบบการจัดการสี การวิจัยนี้ได้สร้างระบบการจัดการสีสำหรับเครื่องถ่ายเอกสารชนิดสอดสีเพื่อควบคุมการผลิตภาพสีที่ใช้แทนภาพปรู๊ฟออฟเซต โดยสร้างโพรไฟล์ 2 แบบ แบบที่ 1 เป็นระบบการจัดการสีแบบรวมสีทั้งหมด แบบที่ 2 เป็นระบบการจัดการสีแบบแบ่งพื้นที่สีเป็น 2 กลุ่ม ต้นฉบับที่ใช้เป็นภาพมาตรฐาน ISO12640 (Standard Colour Image Data : SCID) มีข้อมูลเป็น R, G, B ซึ่งนำไปพิมพ์ภาพปรู๊ฟออฟเซต และ ภาพปรู๊ฟจากเครื่องถ่ายเอกสารชนิดสอดสี และหาค่าความสัมพันธ์ของค่าสีไตรสติมูลัส X, Y, Z ของภาพทั้งสองกับค่าสี R, G, B ในรูปของ Multiple linear regression จากการเปรียบเทียบภาพสีจากระบบการจัดการสีทั้งสองแบบพบว่า ค่าความแตกต่างสี (Colour different : $\Delta$ E)โดยเฉลี่ยของภาพพิมพ์ที่ใช้โพรไฟล์แบบที่ 1 ลดลง 35 % และ $\Delta$ E ของภาพพิมพ์ที่ใช้โพรไฟล์แบบที่ 2 ลดลง 58 % และ การผลิตน้ำหนักสีของภาพจากระบบการจัดการสีแบบที่ 2 ดีกว่าของภาพจากระบบการจัดการสีแบบที่ 1



ภาควิชา วิทยาศาสตร์ทางภาพถ่ายและเทคโนโลยีทางการพิมพ์ ลายมือชื่อนิสิต..............................

สาขาวิชา เทคโนโลยีทางภาพ ลายมือชื่ออาจารย์ที่ปรึกษา..............................

ปีการศึกษา 2542 ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..............................

## # 3970121423 : MAJOR IMAGING TECHNOLOGY

KEY WORD: colour copier / offset proof / CMS.

KUNNATEE KREPRASERTKUL : DEVELOPMENT OF COLOUR MANAGEMENT SYSTEM FOR PRODUCING A PROOF FROM COLOUR COPIER AS AN OFFSET PROOF. THESIS ADVISOR : ASSOCIATE PROFESSOR PONTAWEE PUNGRASSAMEE, M.S. THESIS CO--ADVISOR : ASSOCIATE ARAN HANSUEBSAI, Ph.D., 147 PP. ISBN 974-333-964-7

To match the colour print of the colour copier and the offset proof, a colour management system is needed. The purpose of this research is to develop the colour management system (CMS) for producing a proof from colour copier as an offset proof. In the study, the 2 profiles were developed; the first profile was calculated from 614 colorimetric values and the second profile was calculated from the 2 divided groups of colorimetric values. The Standard Colour Image Data : SCID (ISO12640) with the RGB data were used to produce both the offset proofs from proof press and colour prints from the colour copier. Then colorimetric values of the two processes were measured. The relationship between XYZ of the proofs and RGB of the original of the two systems were obtained by using the Multiple Linear Regression. The average colour different ($\Delta$E) of the print-out with the first profile is decreased 35 % and the average $\Delta$E of print-out with the modified profile is decreased 58 %. And the tone reproduction of the image from the second profile is better than that from the first profile.

ภาควิชา วิทยาศาสตร์ทางภาพถ่ายและเทคโนโลยีทางการพิมพ์ ลายมือชื่อนิสิต..........

สาขาวิชา เทคโนโลยีทางภาพ ลายมือชื่ออาจารย์ที่ปรึกษา..........

ปีการศึกษา 2542 ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..........

# ACKNOWLEDGMENTS

The author would like to thank all the professors; especially Associate Professor Pontawee Pungrassmee, Professor Suda Kiatkamjornwong, Ph.D., Associate Professor Aran Hansuebsai, Ph.D. and all of the invited lecturers from Canon Inc.,Japan for all their academically help. She would like to express her deep gratitude to the Department of Photographic Science and Printing Technology, Chulalongkorn University. The knowledge gained from the Department is invaluable.

Her great indebtedness is Associate Professor Pontawee Pungrassmee, Associate Professor Aran Hansuebsai, Ph.D., Professor Yasushi Hoshino, Ph.D. from Nippon Institute of technology and Mr. Yujiro Ando from Canon INC., Japan for their kindly advice. She would like to thank to Amarin Printing Group for providing the all materials to produce the offset proofs.

Finally she would like to thank her family; her husband, her daugter, her mother and father whose love, understanding and encouragement has been a constant source of inspiration.

# CONTENTS

**CONTENTS (CONTINUED)**

## LIST OF TABLES

# LIST OF FIGURES

**LIST OF FIGURES (CONTINUED)**

## LIST OF FIGURES (CONTINUED)

## LIST OF FIGURES (CONTINUED)

# CHAPTER 1

# INTRODUCTION

## 1.1 Scientific background and rational

In offset colour printing process, colour proofing is one of the important steps. It provides all information of the design before the actual printing takes place on the production press. It is the aim of every reproduction house and/or printing house to produce colour proof sheet to be as close to the final print, as possible. There are many ways to obtain the colour proof sheets. They can be printed from the proof press, produced from the special colour proof equipment; off-press proof or even soft proof on the monitors. In the former years colour proof from proof press has been accepted as the best colour proof because both printing press and proof press can use the same material such as film, plate, paper, and ink. Colour proof from proof press has been used as an approved for the customers.

In fact, the cost of colour proof is very expensive. They require both materials and experienced operators. During the last 10 years, prepress of offset printing technology have been changed dramatically to be digital. All information both in the form of texts and images are handled in the digital files for all stages of the prepress process. Nowadays the digital output devices are widely used in the printing industry including repro house and advertising company. It is obvious that the role of digital proof become more and more importance. At this moment digital proofs still in developing process because of some limitations. Most of the digital output equipment need different materials from that are used in printing production. Furthermore the hard copy output process is different from printing process. Any way digital proof system has some advantages to the conventional proof-press and off-press system. The operation is fast, low cost, and does not require the experienced operator. Adjusting digital proof to match proof press print as much as possible is desirable. Colour Management System is the important clue for the successful matching.

There are three main technologies used in the digital output machine; electrophotography, ink jet, and thermography. In this research electrophotography technology was chosen because of its advantages over the others in long-life machine, controllable exposure range, high-speed production, and no requirement of special paper.

Electrophotography is a fully digital printer, it receives RGB data from the original and then converts the colour value to CMYK[5] data before print-out. Both RGB and CMYK are device-dependent colour spaces. (colour change from machine to machine) The device independent colour space are CIELAB, CIELUV, and XYZ. This thesis concerns in the transformation of RGB and XYZ colour spaces.

There are various methods of the transformation RGB data to CMYK data. Dr. Eli Baron[6] found that the relation between colour value was not one by one relation, known as Linear or Matrix transformation. Mr. Jack Keith[7] presented the relationship between RGB and CMY in term of "masking equations", as follows

$$\begin{vmatrix} C \\ M \\ Y \end{vmatrix} = \begin{vmatrix} m1 & m2 & m3 \\ m4 & m5 & m6 \\ m7 & m8 & m9 \end{vmatrix} \begin{vmatrix} 1-R \\ 1-G \\ 1-B \end{vmatrix} \quad \text{.................................1-1}$$

Another method of transformation of RGB to CMYK by mean of XYZ tristimulus value, which is the device-independent colour space as the following equation;

$$RGB = f(XYZ) \quad \text{..........................................................1-2}$$

And the colour transformation are as follow.

RGB(scanner values) ⟷ XYZ

RGB(monitor values) ⟷ XYZ

CMYK ⟷ XYZ

The colour managements is required to correct the colour that varies and be limited because of the device. An available commercial CMS is normally designed to use in any output devices which is not designed to use as colour proof for printing process. The propose of this thesis is to develop the CMS for the colour copier to print the proof as the offset proof.

## 1.2 Objectives

The objective of this research is to develop the Colour Management Systems to control the colour reproduction of colour copier to produce a print that can be used as an offset proof.

## 1.3 Expected benefits obtained from development of the research

The benefits of the development is the technique to create the CMS for other digital output devices to produce an acceptable offset proofs.

## 1.4 Scope of the investigation

The procedures are as follows :

1.4.1 Preparation of the standard colour images data.

1.4.2 Preparation of the films and the offset plates.

1.4.3 Proofing with the offset proof press.

1.4.4 Printing-out the standard colour images by colour copier (Canon CLC 700).

1.4.5 Colorimetric measurement of the offset proofs and the colour copier printed.

1.4.6 Calculation of the colour copier profile.

1.4.7 Printing-out the standard colour images by the colour copier with the developed profile and with the embedded profile in the colour copier system .

1.4.8 Comparing the colour difference ($\Delta E$) of the prints from the two processes.

## 1.5 Content of the thesis

This thesis consists of 5 chapters including (1) introduction, (2) Theoretical considerations and literature review, (3) experimental, (4) results and discussion, and (5) conclusion and suggestions. Chapter 2 presents a proofing system, electrophotography printing, Colorimetry, Colour Management Systems and overview of related studies. Chaper 3 discusses the details about the materials and equipment, the preparation scheme and the procedure of this research. Chapter 4 reports the colour measurement, the profile was calculated and applied to the colour copier system. In the last chapter the conclusion and further study are discussed.

# CHAPTER 2

# THEORETICAL CONSIDERATIONS AND LITERATURE REVIEW

## 2.1 Proofing Systems

Proofing is a key element of the colour printing production process. Without it, any correction cannot be done before the production run and costly reworking may be necessary. The main purposes for making a proof are[8]:

- To predict the appearance of the final reproduction.
- To monitor and control many steps of the reproduction process.
- For the customer approval.

The proof for the customer approval must look and preferably like the printed job. For this reason most proofs in the past have been made on printing presses, either special proof press or production press, with the same paper and ink to be used on the printed job. Because such press proofs are very expensive, take a long time to make and need an experienced operator, may efforts have been made to substitute photomechanical prepress or off-press proof.

The first off-press proofing systems were introduced in the mid-1960s. They were considered to be inferior to press proofs. Eventually, the printing industry found that off-press proofs had a role: as quick, inexpensive internal proofs, as medium-quality proofs, and as high-quality contract proofs. [9]

Colour proofing methods have developed over the years to meet the demands of time, materials, production and evolving printing technologies. Using hard copy proofs has been the primary reference of content and quality for many years. There are many colour proofing methods in the present.

- Press proofs

They are made on the proof press using the same plates, paper, and ink for the job. Obviously the process is expensive and time consuming. Press proofs have provided optimum examples for colour approval and contract purposes.

- Off-press proofs

Off-press proofs were introduced in the early 1970s. They are less expensive than press proofs but in practical application yield a limited number of proofs. Most of them require special materials which are different from those used in the printing production. The colour match is considered close enough to be a useful guide for the average quality printing jobs.

- Digital proofs[10]

Digital proofs are proofs made directly from digital files, usually before films are made and, more compatible with direct-to technologies such as computer-to-plate (CTP) processes and direct to press processes. However, the digital proofing systems are difficult to calibrate and the print-out are inconsistent. Digital proofs such as laser prints have been used by designers for many years as the out put of their designs.

Digital proofs enable clients to approve all page makeup, colours and edit them before films are made. Digital proofs are made directly from digital and image data, at a relatively early stage in production in comparison with other proofing methods. Most digital systems do not use a conventional halftone dot, relying instead on dithering or continuous-tone printing to reproduce tonal values.

Another digital proof is soft proof or monitor-based, a customer would need remote colour monitors for simultaneous viewing. Viewing conditions on both ends would have to be controlled or standardized. The demand of soft proofs continue to increase, pushed by computer-to-press technologies, and by digital data transmission to remote printing sites. The transmission of digital files among publishers, trade shops, and printers do not allow for the physical transfer of hard copy proofs. Data can now arrive at a printing plant before overnight couriers can deliver the contract proof hard copy. A soft proofs on a spectrally matched monitor could display colour and text as the data arrives.

**2.2 Electrophotography printing**

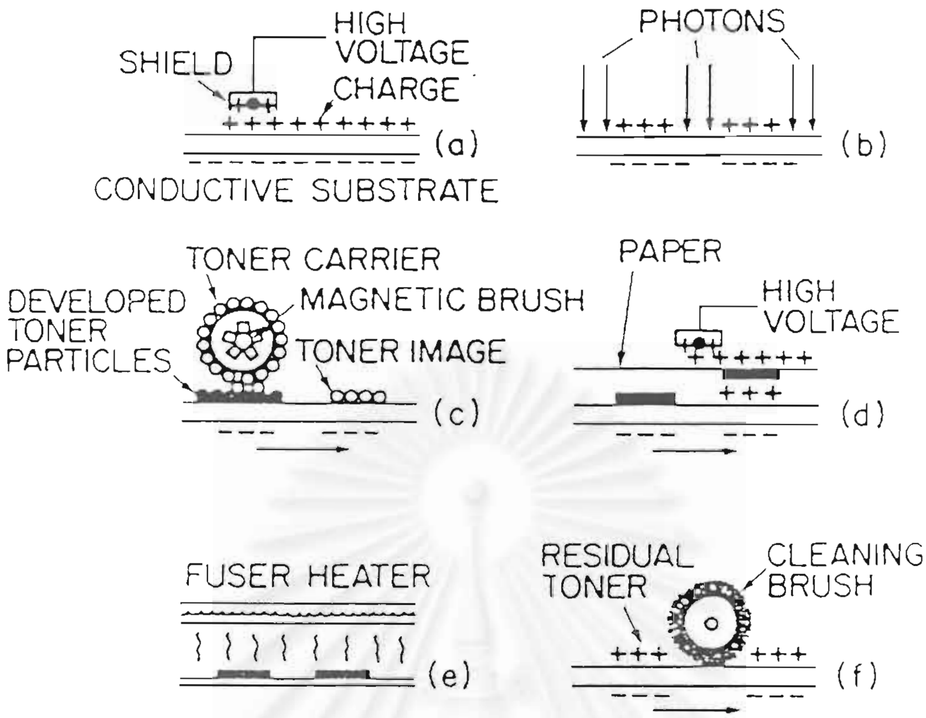
Chester Carlson[11] invented the Xerography in 1938 that used as the copier and in 1978, the Xerography was adopted for computer output printer. Xerox introduced the 9700 Laser Printer, which was the first laser printer commercially available in the U.S. and in the world. It could print out 120 pages/minute. It is still the fastest commercial laser printer. However the 9700 was physically too large and very expensive.

At first, Carlson had used sulfur as the photo active material, after that selenium metal was found to be much more practical. This was the basic for Xerox's technology in 1960. The first commercial dry toners used with selenium were based on stryene-methacrylate polymers and had a negative electrical charge. During the 1970s IBM and Kodak developed and introduced its own organic photoreceptor and positive charging toner. In the meantime continuing to introduce products based on improved selenium photoreceptors and negative toner.

During the 1980s Japanese manufacturers such as Canon and Minolta started introducing low speed copiers based on selenium and cadmium sulfide photoreceptor and again using negative toner. They also introduced dry toner copier using single-component development, eliminating the use of carrier beads.

There are six basic stages to the electrophotography process; charging, exposure, development, transfer, fusing and cleaning. All the stages are repeated for each additional copy.

- Charging: After the drum has been cleaned. The Primary Corotron (corona wire or PCR) applies a uniform negative charge (-600V to -720V DC) on the surface of the drum.
- Exposure: The laser beam is used to discharge the charged on the drum surface. This creates a latent image on the drum. This latent image area will attract toner in a later stage.
- Developing: The latent image becomes a visible image. Toner is attracted to the developer roller either by an internal magnet or by an electrostatic charge.
- Transfer: The toner image on the drum is transferred onto a paper. As the paper is passing under the drum, it is passing over a transfer corotron assembly. This assembly places a positive charge on the back of paper, thus attracting the toner off the drum. A poor charge will result in light print and poor transfer of toner creating more wasted toner.
- Fixing: Fixing or fusing, this is the stage where toner is permanently affixed to the paper. The fusing assembly consists of a head roller, a pressure, heating element, thermostat and thermal fuse. The roller is heated to approximately 180 ° C . The second roller applies pressure to the heated roller. The paper passes between the two rollers, the heated roller melts the toner particles while the pressure roller presses the toner into fiber of paper.
- Cleaning : In this stage the drum is prepared to receive a new latent image through a physical and electrical cleaning process. The physical process consists of a drum cleaning blade (wiper blade) and a recovery blade. The wiper blade scrapes any excess toner off the drum and the recovery blade catches the toner and sweeps it into the waste hopper.




The basic steps in the xerographic process: (a) charging the photoconductor, (b) exposing to form the latent electrostatic image, (c) developing the latest image into a real image, (d) transferring the image to paper, (e) fusing the image to paper, and (f) cleaning residual toner from the photoconductor.

**Figure 2-1 Stages in a colour copier processes** [11]

**2.3 Colorimetry**

The colorimetric value are commonly used in colour management developed by the Austria-base International Commission on Illumination (Commission International de l'Eclairage, CIE)[12]. All are base on the premise that a colour stimulus is a product of a light source, object, an observer. The measured object is the variable. The CIE 1931 Standard Observer was defined using a viewing aperture of $2^{\circ}$ Standard Observer. In 1964 the CIE conducted another experiment in which a 10 field of view was used to provide a sample representing a wider view. The 1964 Standard Observer is also known as the $10^{\circ}$ Standard Observer.

CIE XYZ tristimulus values of a measured colour are calculated by multiplying, for each wavelength interval used, the spectral power distribution of the light source (P), the measured sample (R ). The tristimulus value X corresponds to the red response; Y, green; and Z, blue. The primary colour of green light (546 nm.) chosen by the CIE to define the standard Observer, corresponds with overall human visual response (photopic response) to all colour, or lightness; therefore, the Y value indicates not only a samples green response but also its luminance, or lightness value.

CIEXYZ values provide "raw" colour measurement data that many colour management systems use to make device profile. The numbers cannot easily be interpreted or used to specify colours, foe example, for quality control or colour different measurement.

CIExyz chromaticity values provide a method of graphically plotting the colorimetric values of a sample in a three-dimensional colour space known as the CIE chromaticity diagram, or "horseshoe". The chromaticity coordinates x, y, and z are calculated by dividing each of the tristimulus values, X, Y, and Z, by their sum (X+Y+Z). The CIE chromaticity diagram plots x on the horizontal axis and y on the vertical axis. The tristimulus value Y, providing a measure of luminance, is used for the third axis. CIE xyY colour values are straight calculations from XYZ tristimulus values. They are used in some colour mangement applications, such as the custom "Printing Inks Setup" dialog box in Adobe Photoshop. Colour gamut plots, e.g., monitor vs. print or HiFi colour vs. CMYK colour, are sometimes compared and contrasted in the CIE chromaticity diagram. A practical limitation of the CIE chromaticity diagram is that it does not provide a perceptually uniform colour space; that is, the distance between two or more colours in xyY space does not necessarily correspond with the colour visual similarity or difference. There, CIE chromaticity values do not provide a useful tool for communicating colour difference. CIELAB was developed to meet this need.

CIELAB, or CIEL*a*b*, is a three-dimensional plot calculated from CIE XYZ tristimulus values, in which L* is luminance, a* is the red-green axis, and b* is the blue-yellow axis. Whereas the CIE chromaticity diagram is plotted from ratios of XYZ values, the formulas for L*, a*, and b* contain cube roots($x^{1/3}$) and are thus known as nonlinear transformations. This was done in an effort to get a perceptually uniform colour space that could be correlated with visual colour appearance. In other words, distances between colour correspond more closely to differences in appearance in CIELAB space than in CIExyY space. CIELAB colour values are often used in quality control, such as for comparing the differences in printed colours or the difference between a printed reproduction and original item. ΔE, a measure of colour difference in CIELAB space, is calculated using the distance formula to determine the distance in colour space from one colour to another.

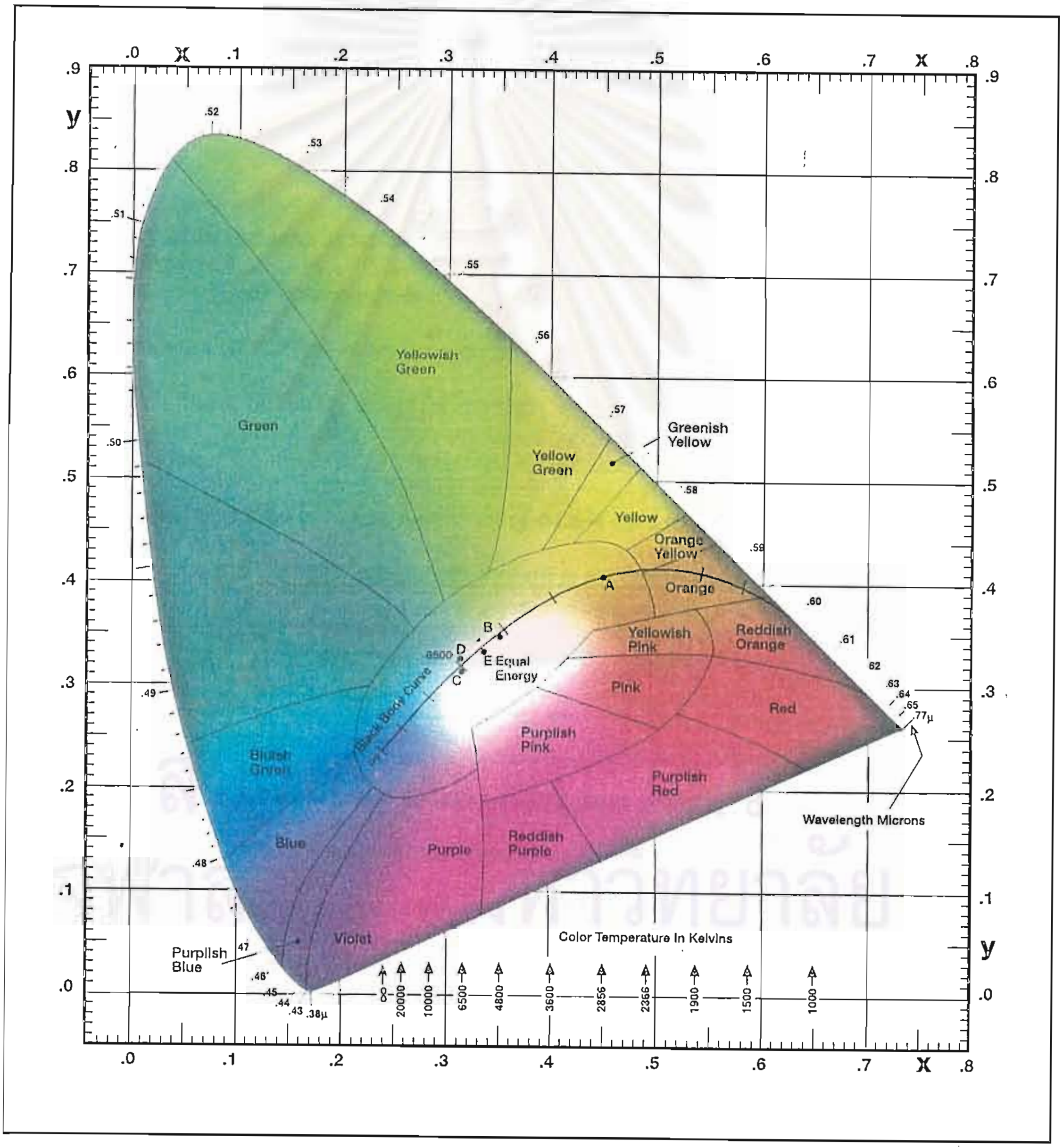



**Figure 2-2 CIE chromaticity diagram, or CIE xyY colour space**

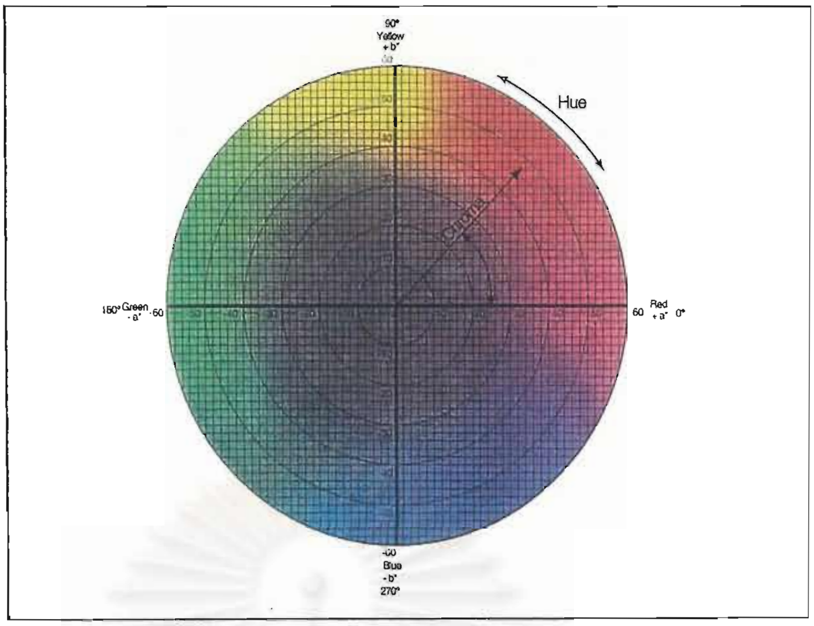



**Figure 2-3 CIELAB colour space: red-green(a*) and blue-yellow(b*)**

**2.4 Colour Management System (CMS)**

Each component in the prepress system, working with its own colour space and gamut, produces colour that is device specific[13]. That is, if one scans a photograph of magenta colour patch, the scanner represents the magenta with a certain set of data. When it displays that image on monitor the magenta is represented by another set of different data. When print the magenta patch on a colour copier, a third set of data is used to represent the magenta, and a third hue appears. So the Colour Management System is needed to translate the device specific colour can be used at all stages of prepress production, with the insurance of predictable colour reproduction.

A CMS attempts to make colour more predictable within the limitations of the devices in use. It's a set of tools, which allow an image to move from process to process or output device to output device and in the ideal world, match. It corrects for difference in device-specific colour so that the image on the output device or monitor can be trusted to match it sources, such as colour transparency, the final colour proofs, and the colour prints.

A CMS is a software package[15], which can characterise as so called "profile". The profile can be linked with image data or with each other. These device profiles are then stored for processing in the data flow as required. To create a profile, it is necessary to apply a palette of colour to the device to be characterized in order to obtain a connection between the device specific data and then associated colorimetic values. Although the user of a device is free to define his own palette of colour being necessary for the device calibrating attempt has been made to define universally applicable tools whose application is also encouraged by the vendors of colour management systems. The two most prominent tools are specified as international standards, i.e.[15] a target for the calibration of input devices and a set of natural and synthetic test images designed for measuring and assessing the output of printing devices.

The target to be used for the calibration of scanners or digital cameras is specified in ISO 12641[16]. The target is material-specific and defined for positive colour transparency film and colour photographic paper. All manufacturers of photographic materials have been invited to produce such targets with their own colour dye set. Therefore the target exists in a number of versions all specific with respect to the substrate (film or paper) and to the dye set.

A target may be calibrated or uncalibrated. Calibrated means that measured values for each patch are provided together with a certificate attesting the conformance to an accredited measurement program. The goal is that all measurements are accurate within two units $\Delta E$ . The colorimetric values are available as XYZ tristimulus values and as CIELAB values base on D50/2. To communicate colorimetric data affiliating to this target, a file format was chosen which allows the use of spread-sheet programs.

The second tool defined as international standard is a set of natural and synthetic images. These images are delivered as digital data available on a CD-ROM formatted in accordance with ISO 9660. File format is TIFF/IT as defined in ISO 12639. The image set is specified in ISO 12640 and consists of eight natural images, five resolution charts and five colour charts. The image are designed for the visual assessment of the output results, the colour charts permit an instrumental assessment. In particular, they allow to create a colour profile.

A very basic criterion of a CMS is that colour profiles can be created by the user. Although creating a profile requires a certain competence of the user, the advantage is a better reproduction quality compares with the application added vendor-made profiles. Profiles provided by a vendor represent an average device description, which fails to give an optimum result in case of a particular device or process. As to creating colour profiles, three cases are to be distinguished:

- Creating input profiles: This is now a standardized procedure for all commercial CMSs. The tool is the IT8.7/1 colour target (according to ISO 12641) for which the calibration values are incorporated in the CMS software. After the target has been scanned with the device to be profiled, the automatic calculation of the colour profile takes only one minute. The target has to be provided by the CMS vendor as both a transparency film and a reflection copy on photographic paper. Although the device profile depends on the colour dye set used to manufacture the target, input profile are usually made only for one dye set.
- Creating output profiles: This procedure includes the following steps:
  - printing a colour chart on the device to be profiled
  - measuring the colour chart
  - entering the values into the CMS software
  - calculation of the profiles

  A CMS must provide a data set for printing the colour chart, and an algorithm to calculate the profile. The most important criterion, however, is that the procedure of measuring and entering the colour values is fast and simple. The minimum solution to fulfil this requirement is that the CMS offers an interface to automatically enter the colour data, which is compatible with the most widely used colourimeters in the graphic arts industry. Another characteristic of a CMS for creating output profiles is the number of colour values necessary to calculate the profile. The current number varies between 200 to 800 values. Clearly, the higher the number of input values is, the measuring procedure should be fast and simple. The accuracy of the profile, however, is not strongly dependent on the number of input values as long as this number is at least 200.

- Creating display profiles: The number of colour necessary for calculating a display profile is significantly smaller than for making a CMYK profile. Theoretically, only the three primaries RGB used for the display device have to be measured. Independent of the number of colour being measured, a special colorimeter designed for a self-luminous surface has to be used. Recently, only few instruments were available for this purpose meaning that profiling display devices was very uncommon. Therefore most CMSs were limited to the possibility of creating input and output profiles. Nowadays, however, typical colorimeters offer the measurement of both self-luminous and surface colours. As a consequence, a modern CMS should also support the profiling of display devices.

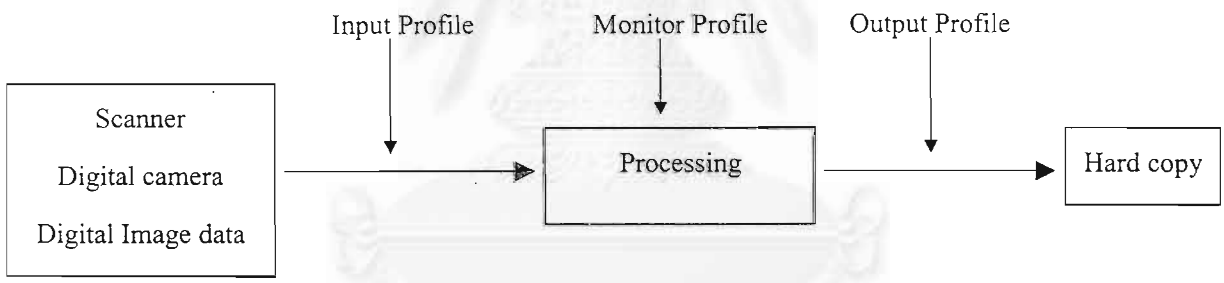



Figure 2-4 A colour managment workflow

It's possible to expect CMS to reproduce colourful reality 100 % accurately[17], since it is obviously restricted by the physically limited colour space of the various media. The technology imbedded in CMS equipment represents a further limitation. Profiles age with their devices and so must be regenerated at regular intervals, at least for scanners, monitor and proof printers. Furthermore the colour measuring instruments are subject to fluctuations in accuracy, which can influence profile quality.

In addition to the above mentioned problems, CMS can also be problem matched in printing processes where the ink properties and standardization conditions differ from those of offset printing.

Any colour measuring equipment is suitable for profile creation, provided its measuring geometry is taken into account. Both spectrophotometers and colorimeters cover the entire visible spectrum in their measurements from 380 nm. to 720 nm. [18]

The available colour measuring equipment on the market is supported by CMS manufacturing. It means that during measurements the system is controlled automatically and directly by the CMS software, or, at the very least that the measurement data are on-line for profile calculation. Alternatively, the measured values can be entered via a spreadsheet, e.g. Microsoft Excel, or as text files. The manual measurements can be quite time consuming. It can also give rise to measuring errors. It is therefor advisable to invest in a measuring in a spectrophotometer with automatic x,y-coordinate measuring facilities or in an automatic chart feed, e.g. GretagMacBeth Spectrolino/SpectroScan, Techkon SP 810 Lambda with TCR or X-Rite DTP41. Monitor profile are best obtained using colorimeters specifically designed for monitor calibration, e.g. Sequel System Calibrator, Techkon SCR or X-Rite DTP92.[19] Both GretagMacBeth Spectrolino and Light Source Colourtron are suitable for both monitor and output profiles.

**2.5 File format**

Depending on the types of graphics images, there will have difference requirements for the file formats[20] storing those images. Files formats are referred to the manner in which the graphic image is stored on the disk. How it's stored determines what programs can open or read the image data, and what can do with it once it's opened. The Tagged Image File Format (TIFF) is a bitmap file and the most widely used. It can be of any dimensions and any resolution. It can have bit depths of 1, 4, 8, 24 or 32 bits per pixel, using gray scale, RGB or CMYK colour models, and can be saved in compressed and uncompressed formats. Almost every program that works with bitmap can handle TIFF files either placing, printing, correcting, or editing the bitmap. When a TIFF file is opened in an intermediary program, and then is saved from that program in order to read it in another program, it's still times consuming. TIFF file is suitable to use a page-layout program to control the tone of a scanned image. TIFF images can include up to 60 tags, each define different properties. Tags are divided into Baseline tags and Extensions. Baseline tags include basic image data such as image size and resolution[21]. Extensions define aspects such as the photometric details needed for the display of colour images that are not stored in RGB mode.

**2.6 Literature Review**

The GATF began its initial survey of digital proofing devices in 1995[22]. For this survey, a two-page test files from which digital proofs would be made was supplied on CD-ROM. The digital proofing vendors tried to make the output with the most accurate gray balance. The digital proofs didn't include the color laser copier. The digital proofs devices were thermal dye transfer and ink jet printing. Gray balance is the key aspects affecting customer satisfaction, but this characteristic was most likely to vary from installation to installation and throughout the life of the proofing device. The important benefit of digital proofing is ease with which calibration can correct gray balance reproduction but calibration must be performed consistency and often to achieve optimal results. Dot gain of the ink jet printer was lesser than press sheet. The solid ink density of ink jet proof was slightly lower than press sheet. However they didn't declare what was the best digital proofing device. Because the products and technologies of digital proofing device have evolved and changed so rapidly that the specific models, dyes, and substrates evaluated may in many cases no longer be in use.

There are several important characteristic for colour copier quality[23] ; image noise, tone reproduction, colour reproduction, find line reproduction and OHP projection performance. The two important characteristics are low image noise and highlight reproduction. By using the 7 micron toner, the image noise has been greatly reduced and is slightly worse than offset print quality.

Ideally, it's necessary to use the right system for the type of work that are printed and each system is calibrated to ensure consistency. For examples; Kodak Approved, Screen TruRite or Optronics Intelliproof[24] are suitable to print-out halftone dots. Dye sublimation proof, such as an Imation Rainbow, Kodak DCP9000, or Tektronix Phaser 480X for colour proofing, the calibration of proofing systems has been made easier by manufacturers who supply preset characterizations to printing processes and built-in calibration utilities.

The first digital proofs were introduced by Hell and Crosfield[25]. The proofs on colour photographic paper made on its CPR 403 Color Proof Recorder from data in its Chromacom system. Because of the eliminated of register problems colour photographic material type with three emulsion layer that . Resolution capability is 1200 lines/inch (472 lines/cm.) The colour gamut of the colour proof is larger than that of offset press. (Eurostandard ink) Crosfield Magnaproof System is capable of producing fast and inexpensive print out in the Crosfield Studio 860 Image Processing System. It's automatically controled the colour correction and colour gradation.

REMAK Colour proofing system[26] was the first colour proofing system to use electrostatic principles. As the sensitive to conductivity of the air contact of the photoconductor, the process demanded very stringent control of the relative humidity in the working area which required a dedicated space for the proof press with elaborate and expensive air conditioning. Also, due to the high surface voltage on the photoconductor surface, exposure did not completely discharge the non-image areas and left a variable residual charge on them resulting in inconsistent random toning on the proofs. In addition, any variations in the electrical properties of the photoconductor or toner between lots caused variations in the processing that affected the consistency and reproducibility of the proofs.

KC-Colour proofing system[27] is the development of electrostatic proofing processes. With a new photoconductor and new liquid toner, it has been able to eliminate all of REMAK's limitations while retaining all of its superior qualities and providing additional benefits. Proofs made by the KC-Proofing system was not only match the printing ink in spectral and optical characteristics but also match the halftone gravure.

Robert Rolleston presented the "Visualization of colorimetric calibration"[28]. By using a system model which consists of an initial monotonic mapping of an input colour vector, the transformation of the colour vector by mean of a matrix operation, and finally another monotonic mapping of the colour vector.

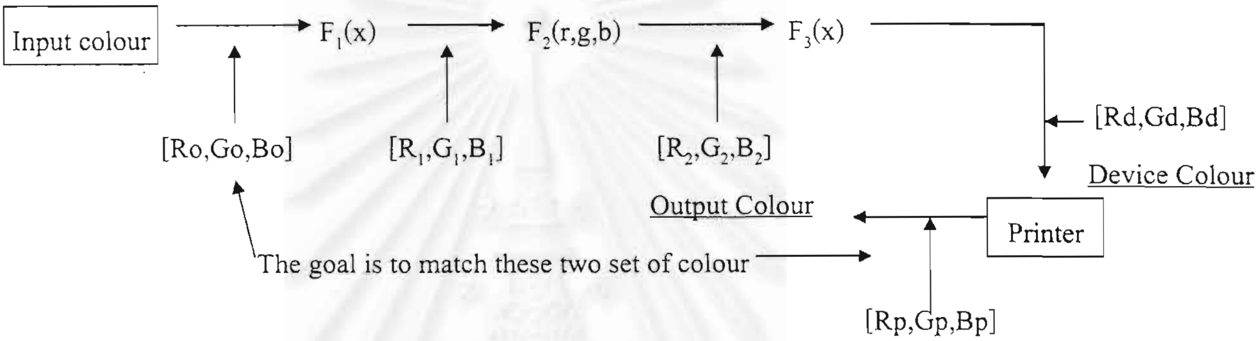



**Figure 2-5 System model of colour matching.**

The desired colour will be referred to as [Ro, Go, Bo]. This input colour vector is first mapped through a monotonic function $F_1(x)$ (where x is Ro, Go, Bo) to produce the modified colour [$R_1$, $G_1$ ,$B_1$]. That is [$R_1$=$F_1$(Ro), $G_1$=$F_1$(Go), $B_1$=$F_1$(Bo)]. This first intermediate colour vector is mapped through the function $F_2$(r,g,b) takes the form of a matrix multiplication. The first intermediate colour vector is cast into a vector of the form:[1, $R_1$, $G_1$, $B_1$, $R_1^2$, $G_1^2$, $B_1^2$,.... ,$R_1^3$, $G_1^3$, $B_1^3$,....., $R_1G_1B_1$] and multiplied on the right by an Nx3 matrix. The matrix order N allows for linear, quadratic, or cubic polynomials to define the second intermediate colour [$R_2$, $G_2$, $B_2$] in term of the first intermediate colour.

The commercial Colour Management System sometime get an output[29], which is apparently the unmatched in colour. The colour copier's gamma is unstable even over a day. To archive higher quality of colour reproduction, some kind of gamma control technique is needed.

And the profiles using are will make in most cases. These profiles can actually be put to use even if there local glitches in colour conversion tables.

The ICC Profile Format Specification describes the basic elements of a Colour Management System, which meets the requirements[30]. The ICC specification deals with the colour transformation between devices and is the description of data format, which contains the data required for conversion between devices. Conversion of colour between devices is generally performed using a mathematical table. The transforming data from the source to the target, the first step is to convert the source colour to a colour space, which is independent on any device, and to transform them to the target colour.

The research of converting the colorimetric values of hard copies[31] taken under a reference illuminant to the colorimetric values taken under a viewing illuminant by using a 3-by-3 matrix. They match the colour appearances of soft copies with those of the corresponding hard copies. It has proposed calculating the colorimetric values Xvi, Yvi, Zvi converting to the colorimetric values Xca , Yca, Zca for a state adapted to visual perception by performing chromatic adaptation correction, calculating the R'm, G'm, B'm value of a monitor-dependent signal. They calculated the colorimetric values of each pixel of the hard copies placed under the viewing illuminant. The results of this study suggest that the optimum method is one that used a linear combination matrix between two illuminants conversion matrix and this method would be able to ensure colour matching at a practical level.

# CHAPTER 3

# EXPERIMENTAL

## 3.1 Materials

The list of materials were following;

3.1.1 Original Images in digital data file (CD-ROM) : Standard Colour Image Data (SCID : ISO12640)

3.1.2 Film Control Strip : Kodak type Control Scale T-14

3.1.3 Plate Control Strip: Fuji type Fuji Control Strip

3.1.4 Print Control Strip: Gretag Control Strip CMS-2

3.1.5 Negative Film : Kodak type SLD SP989

3.1.6 Film Developer : Kodak type RA 2000

3.1.7 Presensitized offset Plate : Fuji type VPS (Multi Grain 4)

3.1.8 Plate Developer : Fuji type DP-4

3.1.9 Gum Arabic : PSCDS Chempost : Gummin PP1006

3.1.10 Protective ink : Fuji type PS Plate Protection Ink

3.1.11 Process offset ink : Toyoking

3.1.12 Paper : Matted-coated and special paper for colour copier

## 3.2 Equipment

The list of equipment were following;

3.2.1 Computer : Macintosh (PowerMac 7100)

3.2.2 Imagesetter : Linotype-Hell type Herkules PRO

3.2.3 Film Processor : Glung & Jensen

3.2.4 Plate Exposure : Screen type P-814-G

3.2.5 Plate Processor : Tung Shung Machinery type P88-F

3.2.6 Offset proof : Screen : KF-124GL

3.2.7 Spectrophotometer : Gretag : Spectroscan and Spectrolino

3.2.8 Colour copier : Canon type CLC 700 with ColorPASS

### 3.3 Preparation Scheme

3.3.1 Offset proof

- Preparation of pagination the 8 images of the Standard Colour Image Data (SCID : ISO12640) by Adobe PageMaker program ( Figure 3-1)
- Preparation of colour separation film by the imagesetter and developing by film processor
- Preparation of plates by plate exposure and then developing plates by plate processor
- Proofing by offset proof press ; Screen type KF-124GL with 4-colour process ink on the matted-coated papers

The offset proofs were printed by the offset proof-press; at Amarin Printing Group. The quality control of proofs were referred to Gretag Standard. The offset proof was choosed 10 samples from 30 sheets.


**Figure 3-1 Lay-out of pagination**

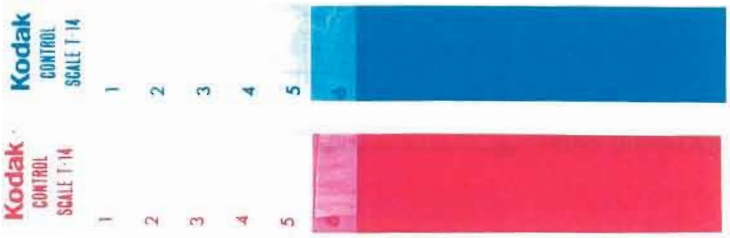



**Figure 3-2 Kodak Control Scale T-14**

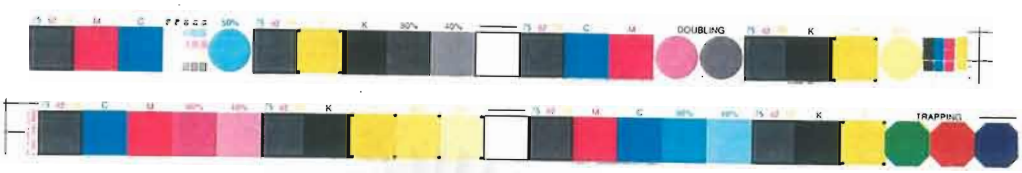



**Figure 3-3 Gretag Color Control Strip CMS-2**

3.3.2 Colour copier proof

- Print-out the Standard Colour Image Data by the colour copier ; Canon CLC 700

**3.4 Procedure**

3.4.1 Preparation of pagination the 8 images of the Standard Colour Image Data (the definition see Table A-1 in Appendix A)

3.4.2 Proofing the Standard Colour Image by offset proof press

3.4.3 Printout the standard colour images by colour copier

3.4.4 Colorimetric measurement the XYZ tristimulus values and L*a*b* values of the offset proof and the colour copier printout by the spectrophotometer ; Gretag Spectroscan and Spectrolino. The average X, Y, Z, L*, a*, b* were calculated from the 3-time measurement of the colour copier printout .

3.4.5 The RGB values of the Standard Colour Image Data from CD-ROM would be measured by the function in PhotoShop program.

3.4.6 The colour copier profile would be calculated in Excel program. The model of calculation profile was as follow;

**System model 1**

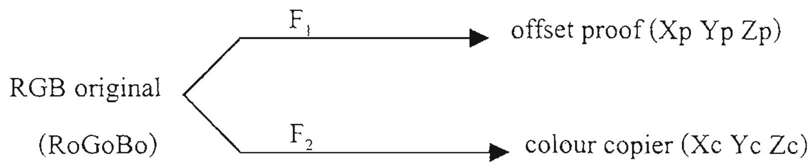



**Figure 3-4 System model 1 for producing colour prints from colour copier and offset proof**

System model 1 was used the colorimetric red, green, blue signals as inputs to describe the desired colour. These input colours referred as Ro, Go, Bo were mapped through a function $F_1$ to produce the offset proof (XpYpZp).

XpYpZp = $F_1$(RoGoBo).................................................3-1

XcYcZc = $F_2$(RoGoBo).................................................3-2

The "least squares" method was used to obtain the best fit line. The following formulas in Excel program were used.

Xc = Index(Lineat (Xc,R)

Yc = Index(Lineat (Yc,G)

Zc = Index(Lineat (Zc,B)

3.4.7 The standard colour images data were printed by the colour copier under three conditions;

- without the profile
- with the developed profile
- with the embedded profile in the colour copier system.

3.4.8 The X, Y, Z, L*, a*, b* of the printout were measured.

3.4.9 The print-outs were evaluated and analysed.

# CHAPTER 4

# RESULTS AND DISCUSSION

## 4.1 The quality of offset proof

The solid density of cyan, magenta, yellow and black and % dot gain at 40% dot area of the offset proofs were shown in Table 4-1.

| Sample no. | Solid Density | | | | % dot gain | | | |
|---|---|---|---|---|---|---|---|---|
| | Cyan | Magenta | Yellow | Black | Cyan | Magenta | Yellow | Black |
| 1 | 1.51 | 1.35 | 1.40 | 1.86 | 14 | 10.5 | 10.50 | 12.00 |
| 2 | 1.45 | 1.35 | 1.40 | 1.81 | 11.5 | 9.50 | 11.00 | 12.33 |
| 3 | 1.38 | 1.34 | 1.38 | 1.87 | 12.75 | 10.00 | 10.25 | 10.67 |
| 4 | 1.38 | 1.27 | 1.26 | 1.88 | 12.50 | 9.75 | 8.00 | 11.00 |
| 5 | 1.21 | 1.36 | 1.08 | 1.95 | 8.75 | 9.00 | 8.75 | 11.33 |
| 6 | 1.31 | 1.26 | 1.12 | 1.90 | 10.25 | 9.00 | 9.25 | 11.00 |
| 7 | 1.26 | 1.29 | 1.16 | 1.84 | 11.00 | 9.25 | 9.25 | 10.67 |
| 8 | 1.18 | 1.25 | 1.24 | 1.79 | 7.50 | 8.25 | 8.50 | 10.67 |
| 9 | 1.24 | 1.23 | 1.25 | 1.63 | 11.75 | 10.50 | 8.50 | 10.00 |
| 10 | 1.53 | 1.56 | 1.34 | 1.55 | 14 | 13.50 | 11.00 | 10.00 |
| Average | **1.34** | **1.33** | **1.26** | **1.81** | **11.4** | **9.92** | **9.50** | **10.97** |
| Gretag Standard | **1.30-1.35** | **1.35-1.40** | **0.90-0.95** | **1.70-1.80** | **15** | **15** | **17** | **17** |

**Table 4-1 The solid density and % dot gain of the offset proof**

The result showed that the solid density and % dot gain of the samplings were in the Gretag Standard tolerance.

## 4.2 Colorimetry

The RGB of the Standard Colour Image Data and the X, Y, Z, L*, a*, b* of the offset proofs and of the colour copier prints were presented in Table B-1.

## 4.3 The system model 1 (SM1) profile

The colour copier profile was calculated by using the "least squares" method. The result of the calculation were as follows:

$$Xc = 4.4192043+0.11Ro+0.019Go+0.019Bo-(3E-04)Ro^2 -(4E-05)Go^2 -(2E-04)Bo^2+(5E-04)RoGo +(2E-04)RoBo+(2E-04)GoBo \quad \text{4-1}$$

$$Yc = 4.8926761+0.82Ro+0.031Go+0.017Bo-(4E-04)Ro^2 +(2E-04)Go^2-(3E-04)Bo^2+(5E-04)RoGo +(3E-04)RoBo+(1E-04)GoBo \quad \text{4-2}$$

$$Zc = 3.5039952+0.033Ro+0.008Go+0.047Bo-(4E-04)Ro^2 -(1E-04)Go^2-(8E-05)Bo^2+(2E-04)RoGo +(3E-04)RoBo+(3E-04)GoBo \quad \text{4-3}$$

The sum of the squared difference ($r^2$) were as follows :

rsq Xc = 0.97

rsq Yc = 0.97

rsq Zc = 0.96

The rsq Xc,Yc,Zc were nearly equal to 1.00, which means that the relationship among the data were very strong.

By the equation 4.1, 4.2, and 4.3 , the new Xc',Yc',Zc' were given. The "least squares" method was used to obtain the best fit line between the Xc'Yc'Zc' and XpYpZp. The following formulas in Excel program were used.

Xp = Index(Lineat (Xp,Xc')

Yp = Index(Lineat (Yp,Yc')

Zp = Index(Lineat (Zp,Zc')

The result of the calculation were as follows:

$$Xp = -4.949+0.528466Xc'+0.720291Yc'+0.2095021Zc' +0.124629Xc'^2+0.067493Yc'^2+0.014255Zc'^2 -0.18316Xc'Yc'-0.058144Xc'Zc'+0.032139Yc'Zc' \quad \text{4-4}$$

$$
\begin{aligned}
Yp &= -4.965-1.562015Xc'+2.87371Yc'+0.3108309Zc' \\
&\quad +0.152419Xc'^2+0.067005Yc'^2+0.018092Zc'^2 \\
&\quad -0.210487Xc'Yc'-0.077756Xc'Zc'+0.045545Yc'Zc' \quad \ldots\ldots\ldots\ldots 4\text{-}5
\end{aligned}
$$

$$
\begin{aligned}
Zp &= -3.566-0.406087Xc'+0.032363Yc'+2.1992053Zc' \\
&\quad +0.083725Xc'^2+0.038471Yc'^2+0.006018Zc'^2 \\
&\quad -0.105381Xc'Yc'-0.043569Xc'Zc'+0.011106Yc'Zc' \quad \ldots\ldots\ldots\ldots 4\text{-}6
\end{aligned}
$$

Using the equation 4.4, 4.5, 4.6 as simulation condition, the tristimulus values (XYZ) of the colour copier prints with the system model 1 profile were obtained . Using equation 4.7, $\Delta E$ and average $\Delta E$ were obtained as shown in Table B-2.

$$\Delta E = [(\Delta X)^2 + (\Delta Y)^2 + (\Delta Z)^2]^{1/2} \quad \ldots\ldots\ldots\ldots\ldots\ldots 4\text{-}7$$

average $\Delta E$ with the SM1 profile = 3.81

standard deviation $\Delta E$ = 3.50

average $\Delta E$ without profile = 13.28

standard deviation $\Delta E$ = 7.72

Even through the average $\Delta E$ of the colour copier prints with the system model 1 profile was low, the implementation of this profile can not be done or modified. Due to the software of the colour copier system has been protected by licence . Therefore, the researcher desided to introduce the system model 2 (SM2) as follows:

**<u>System model 2</u>**

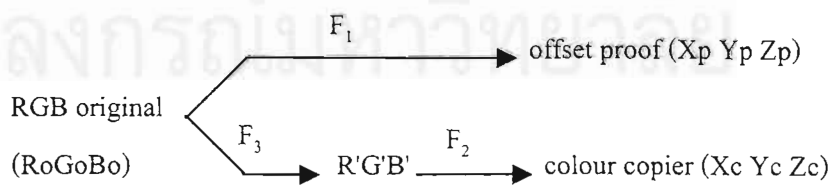



**Figure 4-1 System model 2 for producing colour print from colour copier and offset proof**

The Tristimulus value (XcYcZc) were converted to R'G'B'. The "least squares" method was used to obtain the best fit line.

$$R'G'B' = F_2(XcYcZc) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{4-8}$$

When

$$R' = \text{Index(Linest (R,Xc))}$$

$$G' = \text{Index(Linest (G,Yc))}$$

$$B' = \text{Index (Linest(B,Zc))}$$

The results of calculation were as follows:

$$R' = -14.117+13.0575Xc-6.0408Yc-2.4596Zc+0.76209Xc\text{^}2$$
$$+0.62727Yc\text{^}2+0.05289Zc\text{^}2-1.3876XcYc-0.2534XcZc$$
$$+0.1.8978YcZc \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{4-9}$$

$$G' = -6.8362-17.665Xc+20.8139Yc+2.44377Zc+0.97495Xc\text{^}2$$
$$+0.37392Yc\text{^}2+0.10597Zc\text{^}2-1.2762XcYc-0.4314XcZc$$
$$+0.22921YcZc \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{4-10}$$

$$B' = 4.75888+0.3796Xc-3.3722Yc+9.89608Zc+0.59212Xc\text{^}2$$
$$+0.47574Yc\text{^}2-0.0085Zc\text{^}2-1.0037XcYc-0.1624XcZc$$
$$+0.0621YcZc \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{4-11}$$

The sum of the squared difference ($r^2$) were as follows :

rsq R' = 0.98

rsq G' = 0.96

rsq B' = 0.96



The rsq R', G', B' were nearly equal to 1.00, which means that the relationship among the data were very strong.

The expectation colour copier print-out was to match the offset proof. Which means that the Xc, Yc, Zc would be equal to Xp, Yp, Zp. Then Xp, Yp, Zp values were used in the equation

4-9, 4-10, 4-11. The new R'G'B' were obtained. The function $F_3$ the "least squares" method was used to obtain the best fit line.

R'G'B' = $F_3$ (RoGoBo)....................................................4-12

when

R' = Index(Linest (R',Ro))

G' = Index(Linest (G',Go))

B' = Index (Linest(B',Bo))

The results of calculation were as follows;

R' = -23.19+1.370126Ro+0.137571Go-0.262446Bo
+0.002499Ro^2+0.003273Go^2+0.001583335Bo^2
-0.006639RoGo-0.001574RoBo+0.000628GoBo...............4-13

G' = -3.875-0.703119Ro+2.15068Go+0.3008128Bo
+0.005041Ro^2-0.000585Go^2+0.002779588Bo^2
-0.004985RoGo-0.003448RoBo-0.001602GoBo...............4-14

B' = -13.24-0.221366Ro+0.003775Go+2.0173408Bo
+0.002576Ro^2+0.000959Go^2-0.000231857Bo^2
-0.001237RoGo-0.002466RoBo-0.002412GoBo...............4-15

Using equation 4-13, 4-14, 4.15, the new R', G', B' were obtained.

The equation was to calculate the estimate Xc, Yc, Zc. The "least squares" method ws used to obtain the best fit line as the function F.

XcYcZc = F(RoGoBo)....................................................4-16

The results of calculation were as follows;

Xc = 4.419204+0.11026Ro+0.018517Go+0.018502Bo
-0.000296Ro^2 -(4.33E-05)Go^2 -0.000173311Bo^2
+0.000491RoGo+0.000245RoBo+0.000168GoBo...........4-17

Yc = 4.892676+0.081552Ro+0.031024Go+0.016938Bo

$$-0.000372Ro^2+0.000151Go^2-0.00026988Bo^2$$

$$+0.0005334RoGo+0.000295RoBo+0.000144GoBo \quad \ldots\ldots\ldots\ldots 4\text{-}18$$

$$Zc = 3.503995+0.033066Ro+0.007517Go+0.047427Bo$$

$$-0.000354Ro^2-(9.65E\text{-}05)Go^2+(8.26132E\text{-}05)Bo^2$$

$$+0.00025RoGo+0.000292RoBo+0.000305GoBo \quad \ldots\ldots\ldots\ldots 4\text{-}19$$

Using the equation 4-17, 4-18, 4-19 as simulation condition, the tristimulus values XYZ of the colour copier prints with using the system model 2 profile were obtained as shown in Table B-2. The $\Delta E$ and average $\Delta E$ were obtained as shown in Table B-3.

average $\Delta E$ with the SM2 profile = 8.78

standard deviation $\Delta E$ = 12.64

Therefore the system model 2 profile was the equation 4-13, 4-14, 4-15.

**4.4 Implementation of the system model 2 profile**

The system model 2, equation 4.13, 4.14, and 4.15, were written in the C++ program. The workflow of the procedure was as follow :

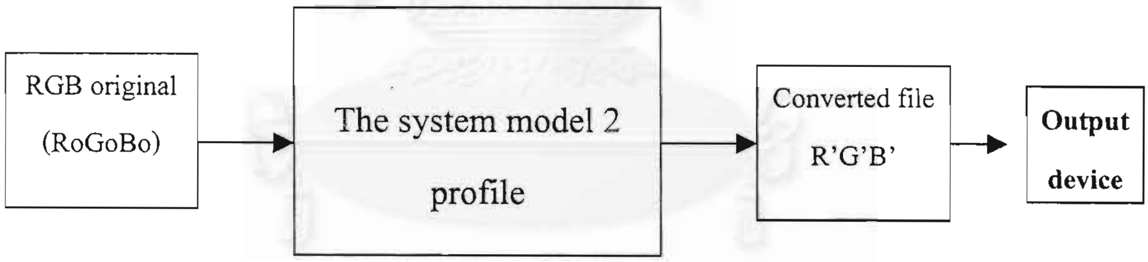



**Figure 4-2 The procedure workflow of the system model 2 profile**

**4.5 Evaluation and analysis of the colour copier prints with using the system model 2 profile**

The $\Delta E(XYZ)$ and $\Delta E(L^*a^*b^*)$ were shown in Table B-3. The $\Delta E(L^*a^*b^*)$ was calculated by the following equation.

$$\Delta E = [(\Delta L^*)^2+(\Delta a^*)^2+(\Delta b^*)^2]^{1/2} \quad \ldots\ldots\ldots\ldots 4\text{-}20$$

The comparison of ΔE were in Table 4-2 .

| | ΔE (average) (XYZ) | STD | ΔE (average) (L*a*b*) | STD |
|---|---|---|---|---|
| Without profile | 13.28 | 7.72 | 22.69 | 11.18 |
| Created profile : System model 1 (by calculated) | 3.81 | 3.50 | - | - |
| Created profile : System model 2 (by calculated) | 8.78 | 12.64 | - | - |
| Created profile : System model 2 (by measurement) | 16.82 | 7.97 | 14.73 | 5.95 |

**Table 4-2 The ΔE of the print-out from the experimental models**

The average of measurement ΔE was larger than the average of calculation ΔE. In Table B-2 show that the average of measurement ΔE of some colour patchs was not conformed with the calculation ΔE. Due to the large numbers of colour patchs in used, it was not practical to analyse the ΔE , patch by patch. Therefore, the colour area was divided into 8 groups as the Table 4-3. Then the profile was calculated by using the "least squares" method to obtain the best fit line of each group again.

| Area no. | R | G | B |
|---|---|---|---|
| 1 | 0 - 128 | 0 – 128 | 0 - 128 |
| 2 | 129 - 255 | 0 – 128 | 0 - 128 |
| 3 | 0 - 128 | 129 – 255 | 0 - 128 |
| 4 | 0 - 128 | 0 – 128 | 129 - 255 |
| 5 | 0 - 128 | 129 – 255 | 129 - 255 |
| 6 | 129 - 255 | 0 – 128 | 129 - 255 |
| 7 | 129 - 255 | 129 – 255 | 0 - 128 |
| 8 | 129 - 255 | 129 – 255 | 129 - 255 |

**Table 4-3 The 8 colour areas**

| Area no. | ΔE (average) (without profile) | ΔE (average) (with profile) | ±ΔE |
|---|---|---|---|
| 1 | 5.87 | 5.81 | -0.06 |
| 2 | 9.11 | 4.01 | -5.09 |
| 3 | 10.07 | 36.14 | +26.07 |
| 4 | 19.15 | 18.44 | -0.71 |
| 5 | 22.36 | 15.37 | -6.99 |
| 6 | 15.36 | 6.79 | -8.57 |
| 7 | 17.12 | 6.06 | -11.06 |
| 8 | 18.37 | 5.63 | -12.74 |

**Table 4-4 The ΔE of 8 colour areas by calculating**

The result of the ΔE calculation shows that the ΔE of area no. 2, 5, 6, 7 and 8 were decreasing in the range 30-70 % , the ΔE of area no.3 increase 260 % and the ΔE of area no.1, 4 were not changed. As the result, it was found that the R value of area no 1, 2, 6 and 7 were below 128 and the R value of area no. 3, 4, 5 were over 128. So, the next step was to divide the colour space area into 2 groups of 3 fixed R, G, and B as follow:

the first was fixed R; R = 0 – 128 and R=129-255

the second was fixed G; G = 0 – 255 and G = 129-255

the third was fixed B; B=0-128 and B=129-255

The result showed that the ΔE of the second and the third were not improved. The ΔE of the first type was decreased significantly. So the modified system model 2 was chosen to divide the colour area by R fixed.

**4.6 The modifiled system model 2 (mSM2) profile**

The modifiled system model 2 (mSM2) profile was calculated by the same method as system model 2.

4.6.1 The calculation of the modifiled system model 2 (mSM2) profile of the colour copier of group no. 1. (R = 0 - 128, G = 0 – 255, B = 0-255) The “least squares” method was used to obtain the best fit line.

$$R'G'B' = F_2(XcYcZc) \ldots\ldots 4\text{-}21$$

$$R' = 6.16936+14.4694Xc-10.17Yc-2.1006Zc+0.38264Xc^2 +0.6505Yc^2+0.05462Zc^2-1.0015XcYc+0.0605XcZc -0.1068YcZc \ldots\ldots 4\text{-}22$$

$$G' = -13.17-20.413Xc+22.1925Yc+3.7522Zc+1.7996Xc^2 +1.10317Yc^2+0.17628Zc^2-2.7309XcYc-0.3065XcZc -0.0662YcZc \ldots\ldots 4\text{-}23$$

$$B' = 6.45877+5.96997R-10.664G+11.3482B+0.44608R^2 +0.95577G^2+0.07182B^2-1.2496RG+0.20354RB- 0.4818GB \ldots\ldots 4\text{-}24$$

The sum of the squared difference ($r^2$) were as follows :

rsq R' = 0.96411

rsq G' = 0.90203

rsq B' = 0.95708

The rsq R'G'B' were nearly equal to 1.00, which means that the relationships among the data were very strong.

Using the XpYpZp to calculate the new R'G'B' by the equation 4-22, 4-23, 4-24. The “least squares” method was used to obtain the best fit line between the new R'G'B' and RoGoBo.

$$R' = -8.330742794+0.72434745Ro-0.523295557Go-0.235150001Bo +0.003820047Ro^2+0.006147514Go^2+0.002874591Bo^2 -0.00110254RoGo-0.000431718RoBo-0.00299267GoBo \ldots\ldots 4\text{-}25$$

$$G' = -4.726550413-1.298319086Ro+2.279861387Go+0.508588187Bo +0.0092598Ro^2+0.004687395Go^2+0.006179986Bo^2 -0.007822712RoGo-0.002191577RoBo-0.011797862GoBo \ldots 4\text{-}26$$

$$B' = -1.144134028-0.500883003Ro-0.73532706Go+2.314806632Bo +0.003472021Ro^2+0.007697529Go^2+0.004209249Bo^2 +0.005342377RoGo-0.005714404RoBo-0.013121975GoBo \ldots 4\text{-}27$$

The sum of the squared difference ($r^2$) were follows :

rsq R' = 0.9671

rsq G' = 0.9481

rsq B' = 0.9584

The rsq R'G'B' were nearly equal to 1.00, which mean that the relationships among the data were very strong.

Finally the profile of colour space group 1 were the equation 4-25, 4-26, 4-27.

4.6.2 The calculation of the modifiled system model 2 (mSM2) profile of the colour copier of group no. 2. (R = 129-255, G = 0 – 255, B = 0-255) The "least squares" method was used to obtain the best fit line.

R'G'B' = $F_2$(XcYcZc)..........................................................4-28

R' = -37.752+15.3752Xc-6.2124Yc-3.2471Zc+0.79485Xc^2
+0.74183Yc^2+0.03733Zc^2-1.5805XcYc-0.2095XcZc
+0.19101YcZc..........................................................4-29

G' = -4.9861-15.648Xc+20.2228Yc+0.84681Zc+0.6922Xc^2
+0.24068Yc^2+0.06732Zc^2-0.9102XcYc-0.2579XcZc
+0.14602YcZc..........................................................4-30

B' = 8.71495-1.7075 Xc -0.5097 Yc +8.92155 Zc +0.73548Xc^2
+0.59648 Yc ^2 -0.0415Zc^2-1.3005XcYc-0.1166XcZc
+0.08307 YcZc ..........................................................4-31

The sum of the squared difference ($r^2$) were as follow:

rsq R' = 0.92

rsq G' = 0.98

rsq B' = 0.98

The rsq R'G'B' were nearly equal to 1.00, which mean that the relationships among the data were very strong.

Using the XpYpZp to calculate the new R'G'B' by the equation 4-29, 4-30, 4-31. The "least squares" method was used to obtain the best fit line between the new R'G'B' and RoGoBo.

R'G'B' = $F_3$(RoGoBo)..........................................................4-32

R' = -119.2101366+2.682934007Ro+0.106835372Go-0.284226658Bo

-0.001938571Ro^2+0.003983374Go^2+0.001097113Bo^2

-0.006840624RoGo-0.000348265RoBo+0.000140966GoBo...4-33

G' = -38.29875313-0.089326042Ro+2.235824015Go-0.085081292Bo

+0.002300932Ro^2+0.001143349Go^2+0.001837729Bo^2

-0.004562329RoGo-0.000984521RoBo-0.000908951GoBo...4-34

B' = -18.70980518-0.09698503Ro+0.286607918Go+1.759509458Bo

+0.001809199Ro^2+0.001389449Go^2-0.001440412Bo^2

-0.003078388RoGo+0.000286083RoBo-0.002328351GoBo...4-35

The sum of the squared difference ($r^2$) were as follow :

rsq R' = 0.91

rsq G' = 0.99

rsq B' = 0.98

The rsq R'G'B' were nearly equal to 1.00, which means that the relationships among the data were very strong.

Finally the profile of colour space group 2 were the equation 4-33, 4-34, 4-35.

The calculation ΔE of group 1 and group 2 were shown in Table 4-5. The ΔE of the print-out with using the modified system model 2 profile was decreased significantly.

| | ΔE (average) without profile | STD | ΔE (average) with profile | STD |
|---|---|---|---|---|
| Group 1 | 15.26 | 6.79 | 5.26 | 4.47 |
| Group 2 | 10.78 | 8.11 | 7.43 | 7.82 |

**Table 4-5 The ΔE of group 1 and group 2 by calculating**

So the the modified system model 2 profile was written in the C++ program. (see Appendix C) The procedure of converting the original file was the same as the system model 2. The workflow of the procedure was as follow ;

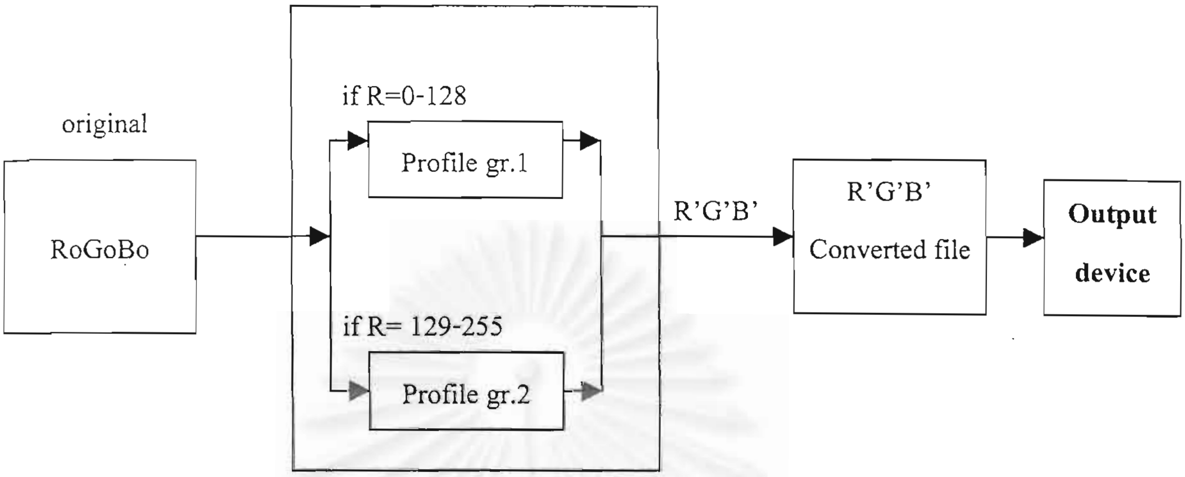



**Figure 4-3 The workflow of the modified system model 2 profile**

**4.7 Evaluation and analysis of the colour copier prints with using difference profile**

After printing-out the converted file to colour copier, measured the colour values were by spectrophotometer. Then the $\Delta E$ were calculated (see Table B-3). The results showed that the colour of the converted files was improved significantly. The $\Delta E$ of the print-out with modified system model 2 was slightly lower than the embedded profile in the colour copier system.

| No. | Profile | $\Delta$E(XYZ) | STD | $\Delta$E(L*a*b*) | STD |
|---|---|---|---|---|---|
| 1. | Without profile | 13.28 | 7.72 | 22.69 | 11.18 |
| 2. | System model 1(by calculating) | 3.81 | 3.50 | - | - |
| 3. | System model 2(by calculating) | 8.78 | 12.64 | - | - |
| 4. | System model 2(by practical) | 16.82 | 7.97 | 14.73 | 5.95 |
| 5. | Modified system model 2 (by calculate) | 6.20 | 6.23 | - | - |
| 6. | Modified system model 2 (by pracdtical) | 5.73 | 3.46 | 9.48 | 6.50 |
| 7. | 700 – 800 | 8.94 | 5.35 | 9.95 | 4.25 |
| 8. | DIC | 10.43 | 6.10 | 10.77 | 7.41 |

| No. | Profile | ΔE(XYZ) | STD | ΔE(L*a*b*) | STD |
|---|---|---|---|---|---|
| 9. | Euroscule | 17.92 | 10.18 | 12.58 | 8.89 |
| 10. | SWOP | 9.10 | 4.95 | 10.68 | 6.74 |

**Table 4-6 The ΔE of the print-out with using difference profiles.**

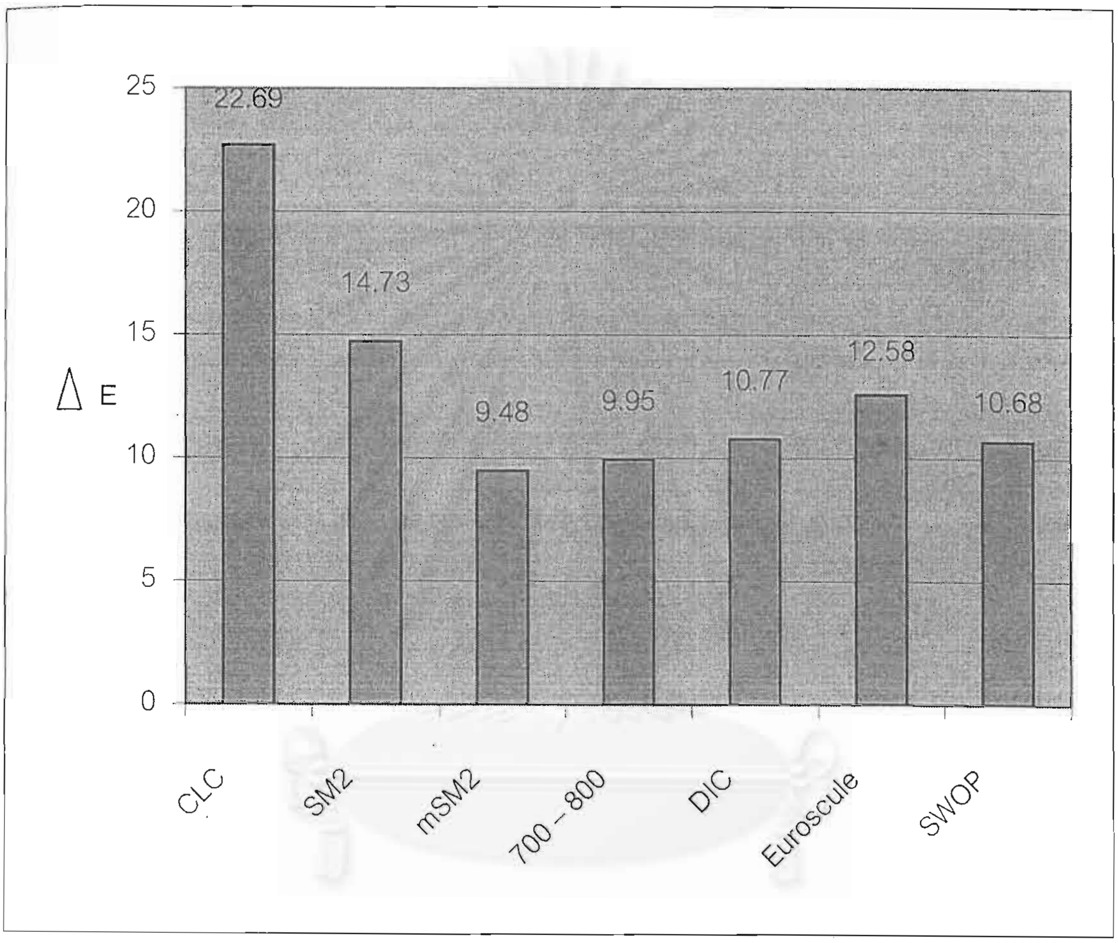



**Figure 4-4 The ΔE (L*a*b*) of the print-out with using difference profiles.**

The standard deviation ΔE of system model 2 was larger than that of the modified system model 2. The Figure 4-5 showed that the highest frequency of ΔE of system model 2 was in the rang 10-20, but the highest frequency of ΔE of the modified system model 2 was in the range 0-15. The results showed that there were 3 frequency of colour patches that the ΔE was higher than 35. Nevertheless, the ΔE of the modified system model 2 was not found.

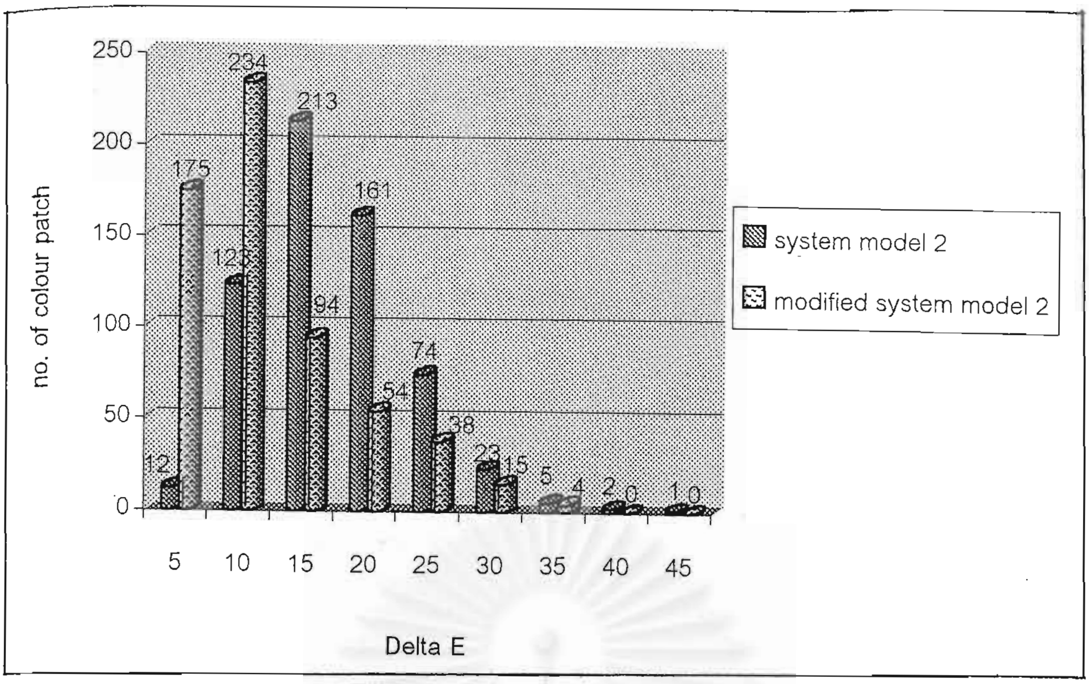



**Figure 4-5 The number of colour patch distributed in the each range $\Delta E$**

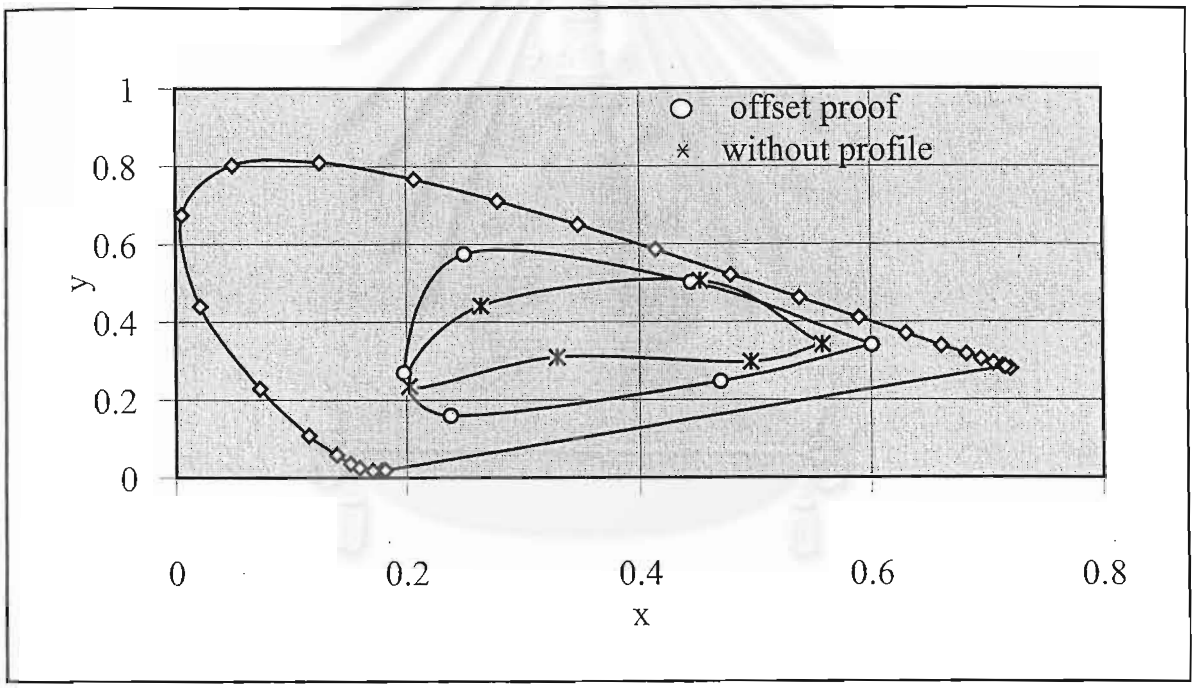



**Figure 4-6 CIE chromaticity diagram of the offset proof and the print-out without profile**



Figure 4-6 , CIEXYZ chromaticity diagram shows that the colour gamut of the offset proof was wider than the print-out without profile. And in Figure 4-7 show the colour gamut of offset proof, the print-out without profile, the print-out with using system model 2, and the print-out with using modified system model 2; the colour gamut of the system model 2 was slightly wider than the offset proof. (Figure 4-7)

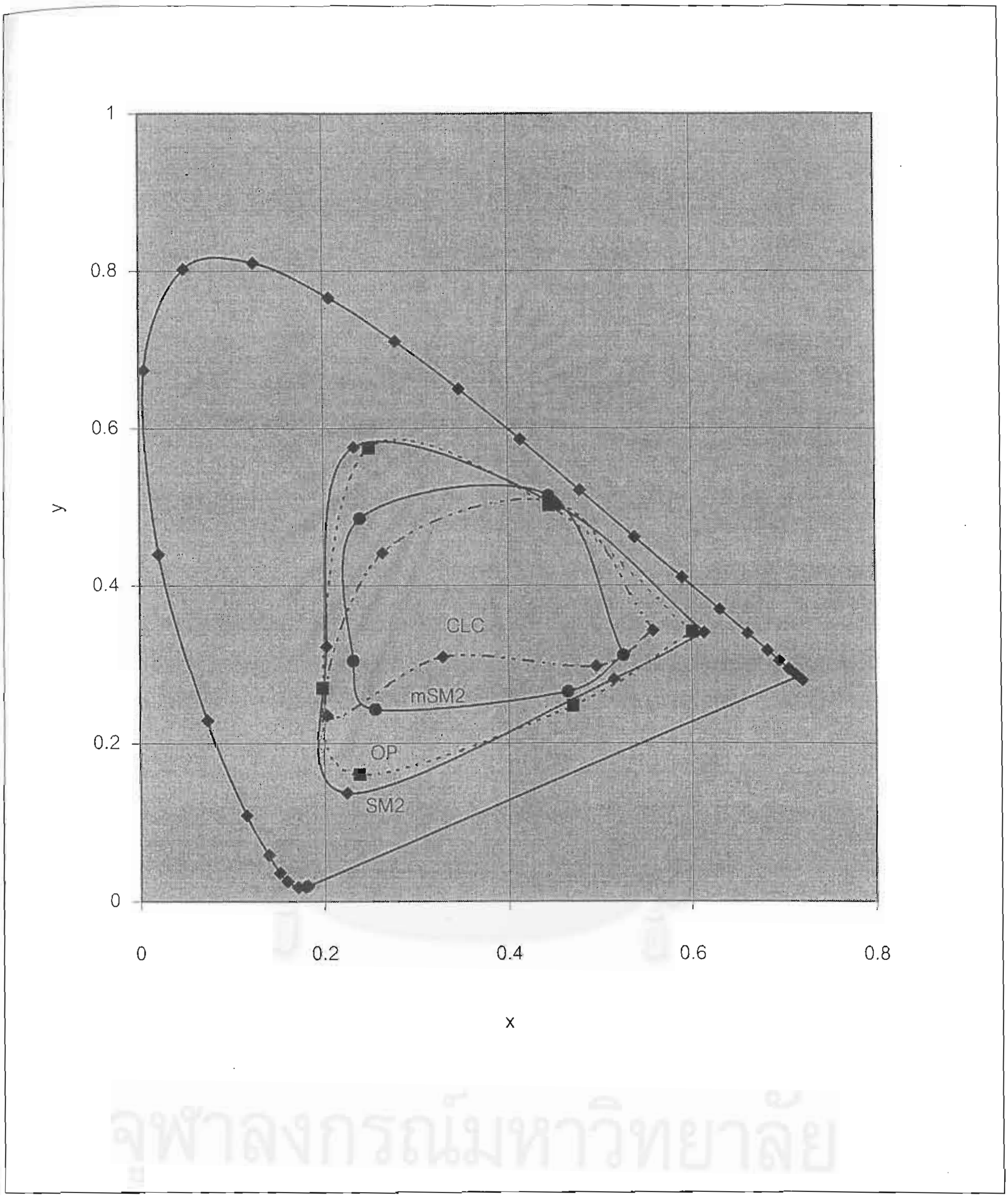



**Figure 4-7 CIE chromaticity diagram of the offset proof(OP) ,the print-out without profile(CLC), the print-out with using system model 2(SM2) , and the print-out with using modified system model 2 (mSM2). (red, green, blue, yellow, magenta and cyan)**

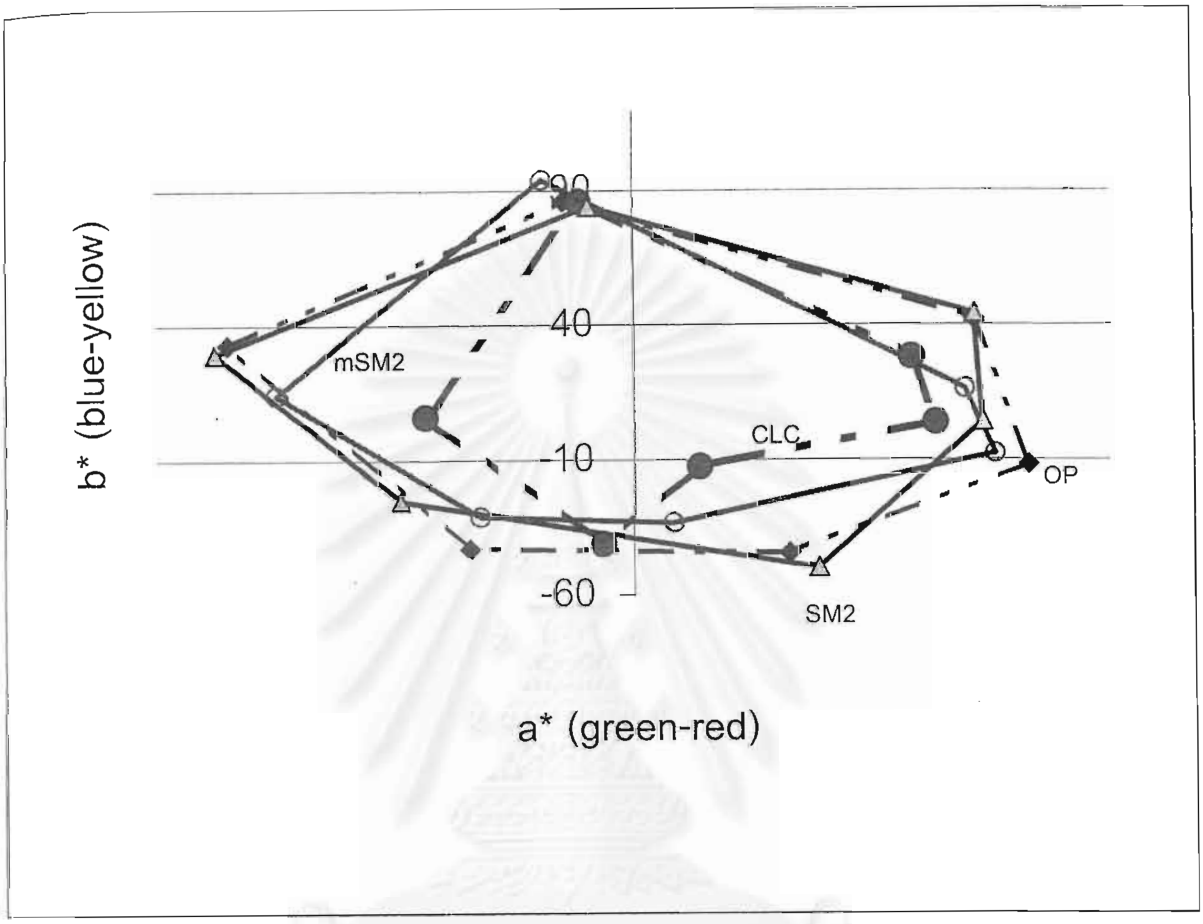



**Figure 4-8 CIE colour space of the offset proof(OP) , the print-out without profile(CLC), the print-out with using system model 2(SM2), and the print-out with using modified system model 2 (mSM2). (red, green, blue, yellow, magenta and cyan)**



The comparability CIE colour space between the offset proof(OP), the print-out without profile(CLC), the print-out with using system model 2(SM2), and the print-out with using modified system model 2 (mSM2); the offset proof was the widest, the print-out with using system model 2 was wider than the print-out with using modified system model 2 (mSM2), and the print-out without profile was the narrowest.

The colour reproduction of the mSM2 prints has an advantage over to the print-out with using other profile. For example, the human skin tone of Image 1(portrait) of the mSM2 prints was not only brighter than the SM2 prints and the print-out without profile but also brighter the 4-embedded profile prints in the colour copier system. However, the human skin tone of the mSM2 prints was reddish. The print-out without profile was redden and blacken.

In Image 4 (orchid), the highlight of the mSM2 print was lighter than the print-out with other profiles, but the shadow of the SM2 print was darker than the mSM2 prints. However the purple orchid of the mSM2 prints was similarity to the offset proof.

In Image 5 (candle), the dark colour, the mSM2 print was similarity to the SM2 print but the mSM2 print was able to recognize the difference between the blue and cyan of the knitting wool. Nevertheless, the other profiles prints can not.

Basic colour patchs(S7) and (S8), the colur reproduction of cyan, magenta, yellow, and black of the mSM2 print at the highlight steps were lighter than the other profiles. And at the 100 % dot of cyan, magenta, yellow, and black were similarity to the offset proof.

In the study, the influencing factors affecting the quality of print-out were investigated. The first factor was the colorimetric measurement. The study showed that the colorimetric values from 3-time measurement were very consistent.(APPENDIX D) And the second was a surrounding humidity, the first used of colour copier for proofing[26] the print-out quality were affected by the surrounding humidity. After developed the photoconducter in colour copier, the surrounding humidity slightly affected the colorimetric values. The study showed that in the morning the surrounding humidity was slightly higher than in the afternoon and the evening, the colorimetric values of print-out in the morning were slightly lower than in the afternoon and the evening. (APPENDIX E) And other factor is the warm-up time. The stability of the colour copier to produce the print-out would be solved, if the warm-up time is sufficient. So the average colorimetric values were used to calculate the profile.

# CHAPTER 5

# CONCLUSION AND SUGGESTION

The study had developed the profiles for the colour copier and the profiles had been imlemented. However the influencing factors affecting the quality of the colour copier prints were considered.

## CONCLUSION

The first profile; the 614 colorimetric values were used to calculate the profile, system model 2(SM2). The result show that the $\Delta$E (calculated by L*a*b*) of the print-out with using the SM2 profile were 35 % lower than the print-out without profile but 40 % higher than the print-out with the embedded profile in colour copier system.

The second profile; the 614 colorimetric values were divided 2 areas to calculate the profile, modified system model 2 (mSM2). The result show that the $\Delta$E of the print-out with using the mSM2 profile were 58 % lower than the print-out without profile and 35 % lower than the print-out with the first created profile. And these were slightly lower than the print-out with the embedded profile in colour copier system. Additionally the tone reproduction of the print-out with using the mSM2 profile is also better than the print-out with the first created profile.

## SUGGESTION

Due to the colour space area were divided into 2 groups for calculating the profile, the $\Delta$E of the print-out with this profile was significantly improved and nearly equal to the print-out with the embedded profile in the colour copier system. So the new divided colour space area method would be considered in the further experimental.

The procedure of the mSM2 profile has still taken time more than the commercial profile and/or the embedded profiles, because the different platforms of the computer were used. The mSM2 had been written in the C++ program and processed the profile on PC computer, MACINTOSH computer was used to print. However the mSM2 profile in the C++ program could be directly processed on Macintosh, if there is a compiler software. And the automatic process of using the mSM2 would be able to develop.

By the model of calculating the mSM2 profile, the user in the printing house or the prepress house could be able not only to modify and apply to their digital output devices very easily but also to save the production cost.

# REFERENCES


1. Williamson, K. C. Digital proofing. **GATFWorld** Vol.8 No.2 (March/April 1996): 3.
2. Hinderliter, H.; and Adams, R. M. Evaluating digital proofs: Second-Round Results. **GATFWorld** Vol.8No.6 (November/December 1996): 17-23.
3. Bruno, M. H. **Principle of color proofing**. Salem: GAMA Communications, 1995. pp.219-228.
4. Takiguchi, K. High quality digital color xerography. **Color Hard Copy and Graphic Arts 2** (February 1993): pp.38-46.
5. Judy, M.; Tony, F.; Michael, K.; and Rob, D. **Advanced color imaging on the Mac OS**. Reading: Addison-Wesley Publishing Company (1995): pp.3.14-3.17.
6. Baron, E. RGB to CMY colour transformation. **J. Profressional printer 38** (January/February 1994): 229-235.
7. Keith, J. The CMYK colour scheme. **Http://www.research.microsoft.com/~hollasch/cgnotes/color/cmyk.htm**, 1997.
8. Green, P. **Understanding digital color**. Pittsburgh: Graphic Arts Technical Foundation, 1995: pp.250-271.
9. Prince, R. J. Proofing. **GATFWorld** Vol.8 No.6 (November/December 1996): 8-9.
10. Bruno, M. H. **Principle of color proofing**. Salem: GAMA Communications, 1995. pp.219-228.
11. Gruber, R. J., and Julien, P. C. Dry Toner Technology in **Handbook of Imaging Materials**. Marcel Dekker, New York, 1991: pp.159-162.
12. Adams M.R.; Weisberg B. J. **The GATF Practical Guide to Color Management**. 2nd ed. Sewickley: Graphic Arts Technical Foundation, 1998: pp.42-48.
13. Dister, K. **A User's Guide to Color Management**. KBA Report No. 11-12/1998. (Mimeographed)
14. Schlapfer, K. **The principles of Color management**. 1997. (Mimeographed)
15. **International Organization for Standardization**[ISO] ISO 12647-2:1996.
16. Fenton, H.M., and Leyda, G. Digital proofing update. **GATEWorld** Vol.9No.2 (March/April 1997): 14.
17. Leyda, G. W. GATF Digital proofing study: Round three. **GATFWorld** Vol. 9No. 2

(March/April 1997): 17-32.

18. Edge, C. J. 3M Color matching technology for digital Matchprint TM. **Color and Graphic Arts 2** (February 1993): pp.333-341.

19. **Ifra Special Report** 2.18: Farbmanagement Systeme(Colour management system), Darmstadt, 1996.

20. Adams, R. M.; and Ollagnier L. M. Scanner proofing software for color management. **GATFWorld** Vol.9 No.4 (July/August 1997): 15-23.

21. **ICC Profile Format Specification**, Version 3.3 number, 1996, International Color Consortium, http://www.color.org.

22. Water, L. Proofing in a Digital World. **GATFWorld** Vol.10 No.1 (January/February 1998): 36-38.

23. Curry, D. N. Hyperacuity Laser image. **Color Hard Copy and Graphic Arts 2** (February 1993): pp.428-439.

24. Bruno, M. H. **Principle of color proofing**. Salem: GAMA Communications, 1995. pp.181-191.

25. Bruno, M. H. **Principle of color proofing**. Salem: GAMA Communications, 1995. pp.130-137.

26. Bruno, M. H. **Principle of color proofing**. Salem: GAMA Communications, 1995. pp.255-272.

27. Bruno, M. H. **Principle of color proofing**. Salem: GAMA Communications, 1995. pp.192-205.

28. Rolleston, R. **Visualization of colorimetric calibration**. Color Hard Copy and Graphic Arts II (1993): pp.299-309.

29. Adams, R. M. Color management makes progress. **GATFWorld** Vol.10 No.1 (January/February 1998): 38-41.

30. **ICC Profile Format Specification**, Version 3.3 number, 1996, International Color Consortium, http://www.color.org.

31. Shiraiwa, Y. et al., Matching of the appearance of colours in hard-copy and soft-copy images in different office environments in **Electronic Imaging** (1998): 10-19.

# APPENDICES

# APPENDIX A

**Table A-1 The definition of the Standard Colour Image Data**

| no. | name | description |
|---|---|---|
| 1 | Portrait | Close-up image of model used to evaluate the reproduction of human skin tones. |
| 2 | Cafeteria | Image with complicated geometric shapes. Suitable for evaluating the result of image processing. |
| 3 | Wine and tableware | Image of glassware and silverware used to evaluate the reproduction of brown colours and fine texture. |
| 4 | Orchid | Image of an orchid with background vignettes used to evaluate reproduction of highlight and shadow vignettes. |
| 5 | Candle | "Low-key" image of a room scene containing miscellaneous objects used to evaluate dark colours, particularly browns and greens. |
| 6 | Basic colour patchs (S7) | The basic colour patchs (S7) consist of 78 basic colour patchs Cyan, Magenta, Yellow, Black, Red, Green, and Blue. |
| 7 | Basic colour patchs (S8) | The basic colour patchs (S7) compose of 104 basic colour patchs Cyan, Magenta, Yellow, Black, Red, Green, and Blue. (colour with black printer) |
| 8 | Colour patchs(S9) | The colour patchs (S9) compose of 432 colour patchs Cyan, Magenta, Yellow, Black, Red, Green, and Blue. (with different % dot area) |


Figure A-1 image 1 : offset proof


**Figure A-2 image 1 : colour copier without profile**


**Figure A-3 image 1 : colour copier with system model 2**


Figure A-4 image 1 : colour copier with modified system model 2


Figure A-5 image 1 :colour copier with embedded profile : 700-800 colour copier Standard


**Figure A-6 image 1 : colour copier with embedded profile : DIC Standard**


**Figure A-7 image 1 colour copier with embedded profile : Euroscale Standard**


Figure A-8 image 1 : colour copier with embedded profile : SWOP


**Figure A-9 Image 2 : offset proof**


**Figure A-10 Image 2**

**: colour copier without profile**


Figure A-11 Image 2

: colour copier with system model 2


Figure A-12 Image 2 : colour copier

with modified system model 2


Figure A-13 Image 2 : colour copier with embedded profile : 700-800 colour copier Standard


Figure A-14 Image 2 : colour copier with embedded profile : DIC Standard


Figure A-15 Image 2 : colour copier with embedded profile : Euroscale Standard


Figure A-16 Image 2 : colour copier with embedded profile : SWOP


Figure A-17 Image 3 : offset proof


Figure A-18 Image 3 : colour copier without profile


Figure A-19 Image 3 : colour copier with system model 2


Figure A-20 Image 3 : colour copier with modified system model 2



**Figure A-21 Image 3 : colour copier with embedded profile : 700-800 colour copier Standard**

**Figure A-22 Image 3 : colour copier with embedded profile : DIC Standard**





**Figure A-23 Image 3 : colour copier with embedded profile : Euroscale Standard**

**Figure A-24 Image 3 : colour copier with embedded profile : SWOP**


Figure A-25 Image 4 : offset proof


Figure A-26 Image 4 : colour copier without profile


Figure A-27 Image 4 : colour copier with system model 2


Figure A-28 Image 4 : colour copier with modified system model 2



**Figure A-29 Image 4 : colour copier with embedded profile : 700-800 colour copier Standard**

**Figure A-30 Image 4 : colour copier with embedded profile : DIC Standard**



**Figure A-31 Image 4 : colour copier with embedded profile : Euroscale Standard**

**Figure A-32 Image 4 : colour copier with embedded profile : SWOP**


Figure A-33 Image 5 : offset proof


Figure A-34 image 5 : colour copier without profile


Figure A-35 Image 5 : colour copier with system model 2


Figure A-36 Image 5 : colour copier with modified system model 2


**Figure A-37 Image 5 : colour copier with embedded profile : 700-800 colour copier Standard**


**Figure A-38 Image 5 : colour copier with embedded profile : DIC Standard**


**Figure A-39 Image 5 : colour copier with embedded profile : Euroscale Standard**


**Figure A-40 Image 5 : colour copier with embedded profile : SWOP**

Figure A-41 Image 6 : offset proof

Figure A-42 Image 6 : colour copier without profile

Figure A-43 Image 6 : colour copier with system model 2

Figure A-44 Image 6 : colour copier with modified system model 2

Figure A-45 Image 6 : colour copier with embedded profile : 700-800 colour copier Standard

Figure A-46 Image 6 : colour copier with embedded profile : DIC Standard

Figure A-47 Image 6 : colour copier with embedded profile : Euroscale Standard

Figure A-48 Image 6 : colour copier with embedded profile : SWOP

Figure A-49 Image 7 : offset proof

Figure A-50 Image 7

: colour copier without profile

Figure A-51 Image 7

: colour copier with system model 2

Figure A-52 Image 7 : colour copier

with modified system model 2

Figure A-53 Image 7 : colour copier with embedded profile : 700-800 colour copier Standard

Figure A-54 Image 7 : colour copier with embedded profile : DIC Standard

Figure A-55 Image 7 : colour copier with embedded profile : Euroscale Standard

Figure A-56 Image 7 : colour copier with embedded profile : SWOP

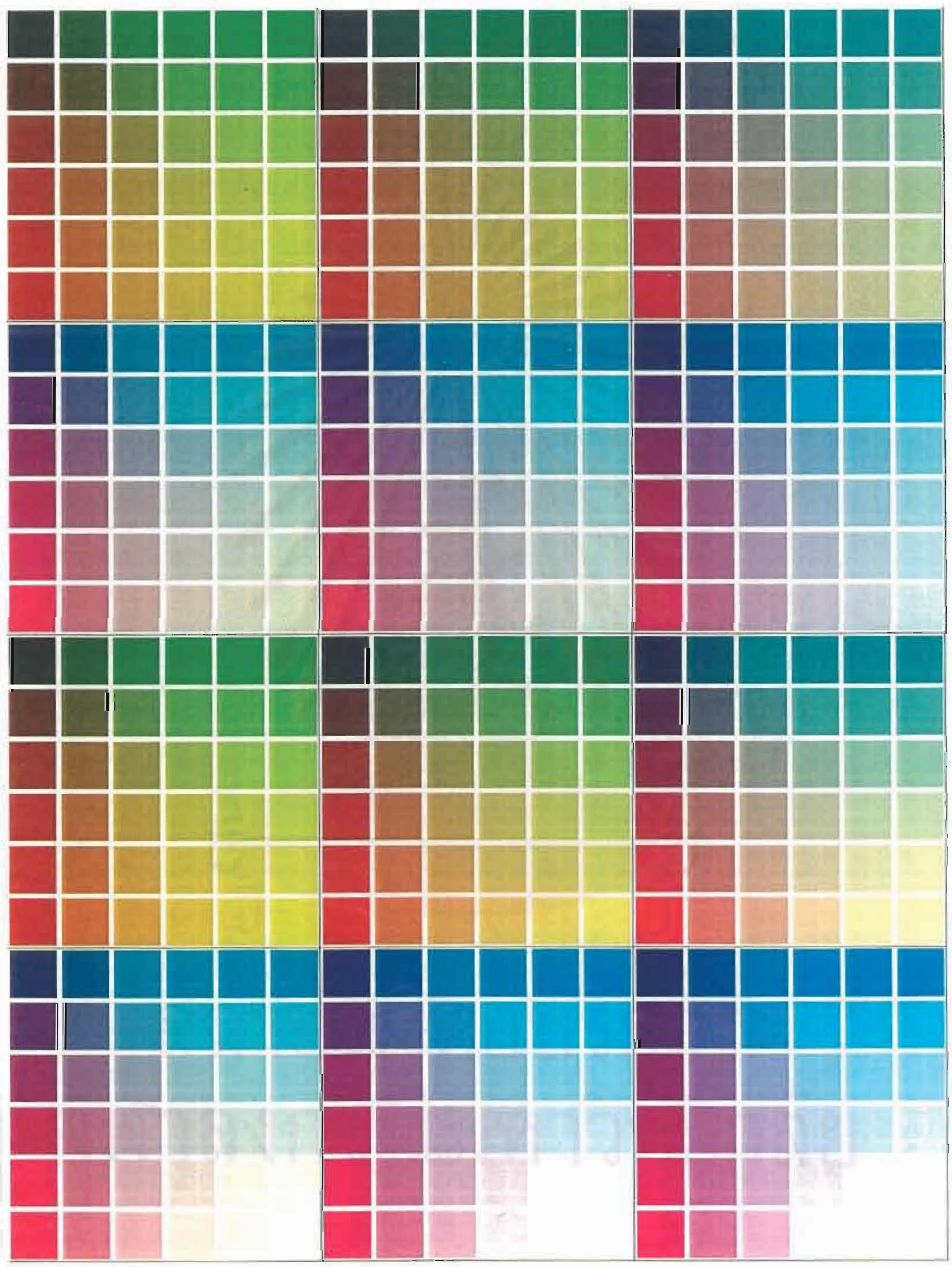


**Figure A-57 Image 8 : offset proof**

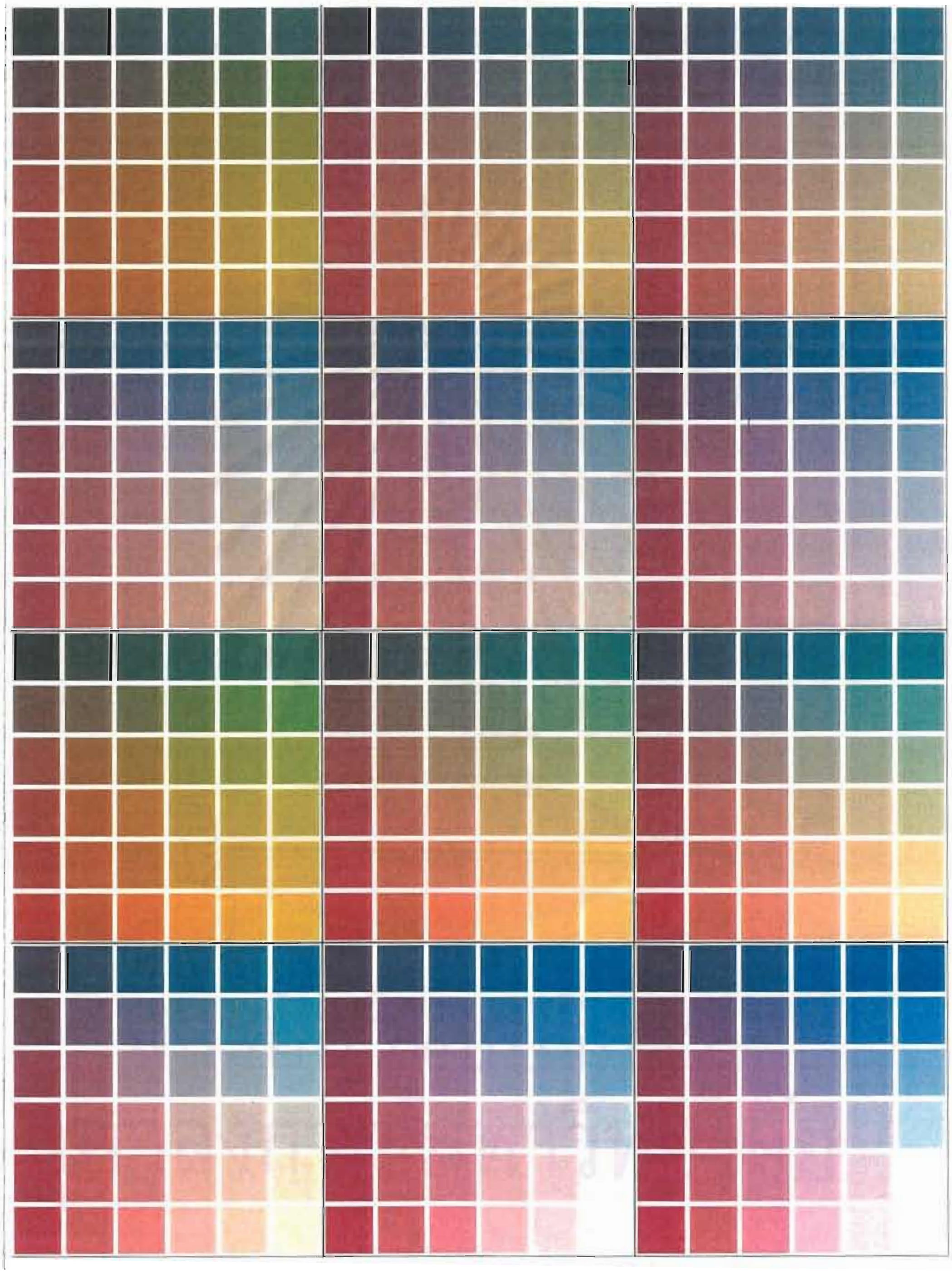


Figure A-58 Image 8 : colour copier without profile

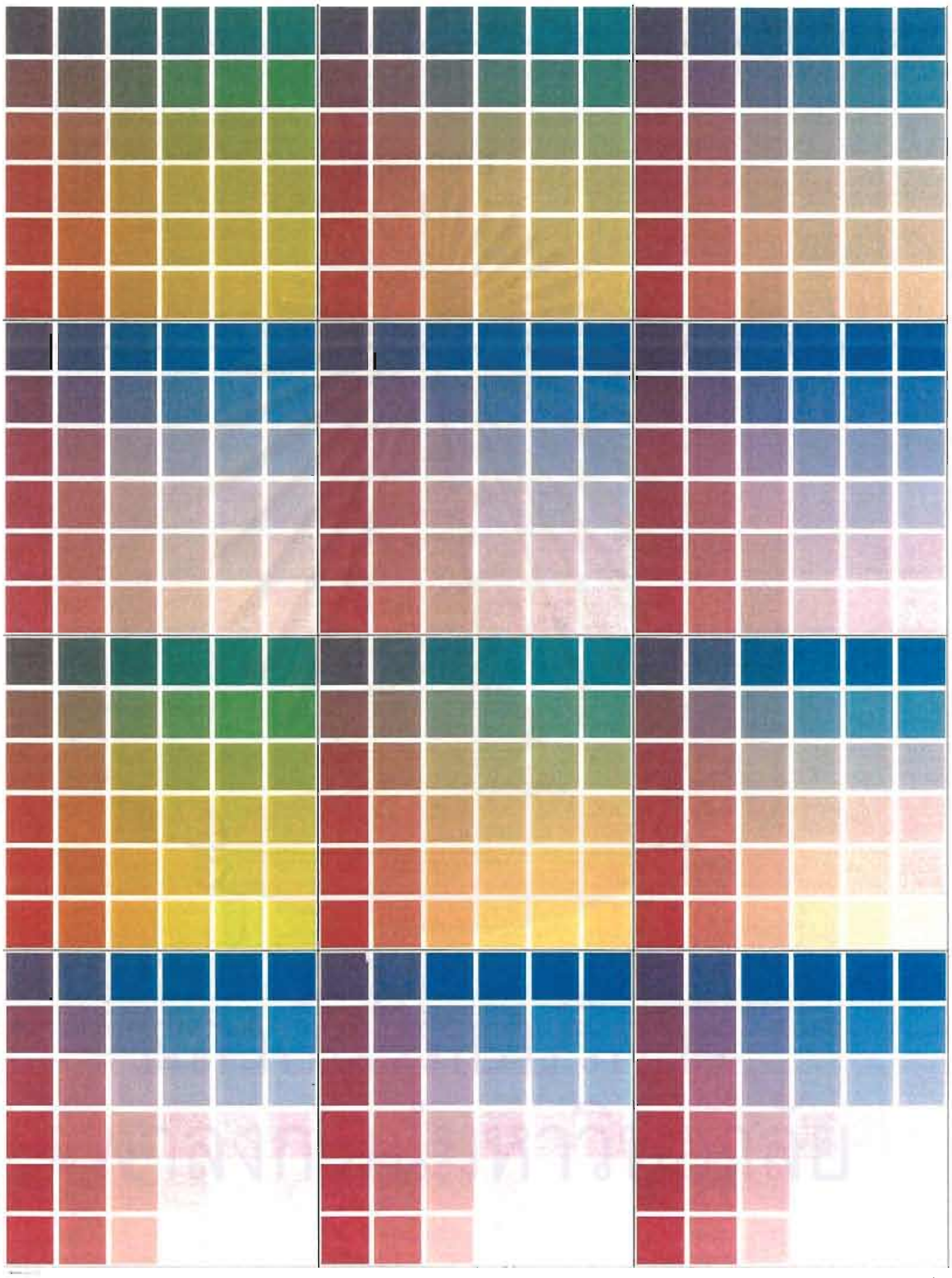


Figure A-59 Image 8 : colour copier with system model 2

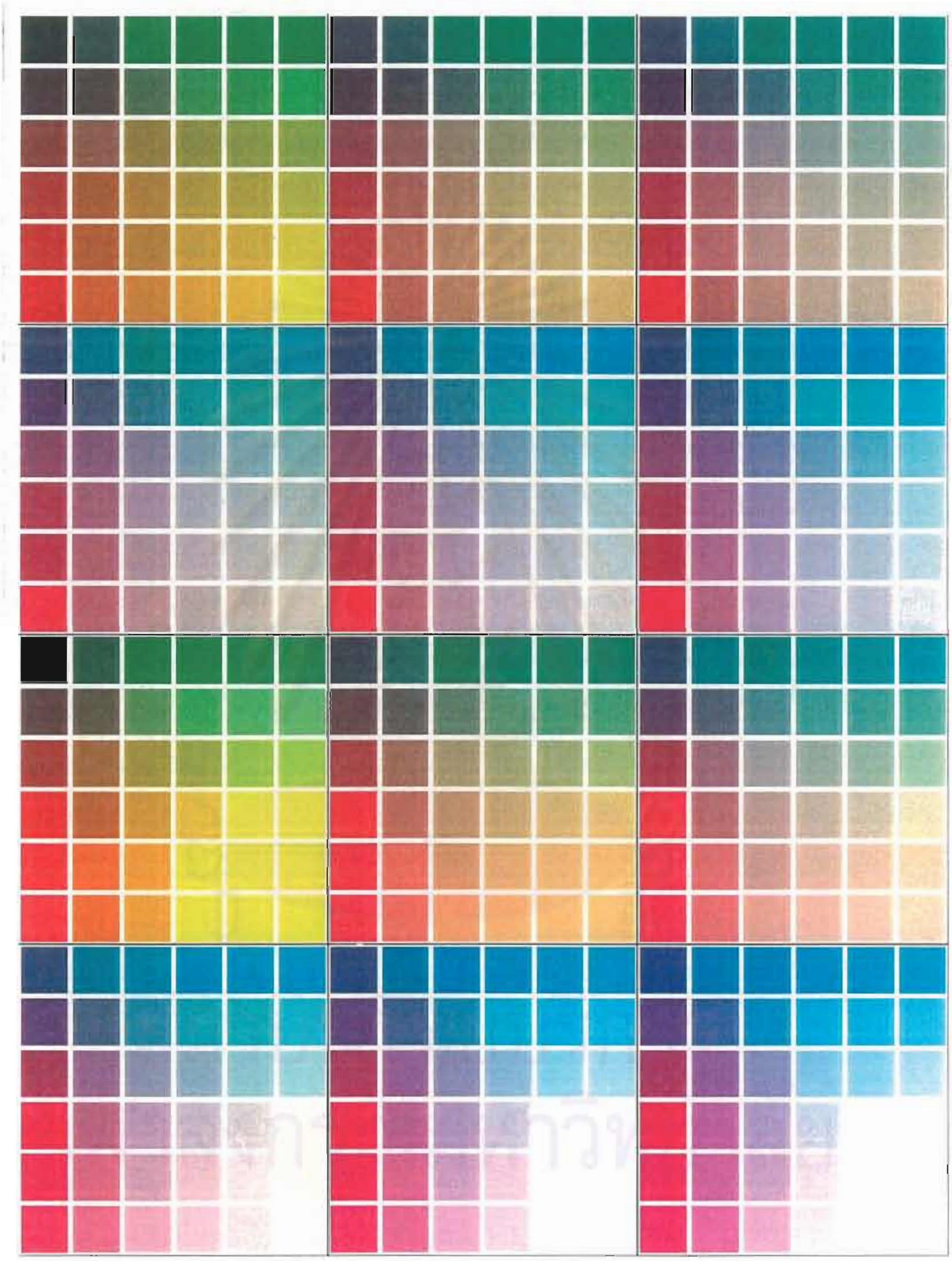


Figure A-60 Image 8 : colour copier with modified system model 2

Figure A-61 Image 8 : colour copier with embedded profile : 700-800 colour copier Standard

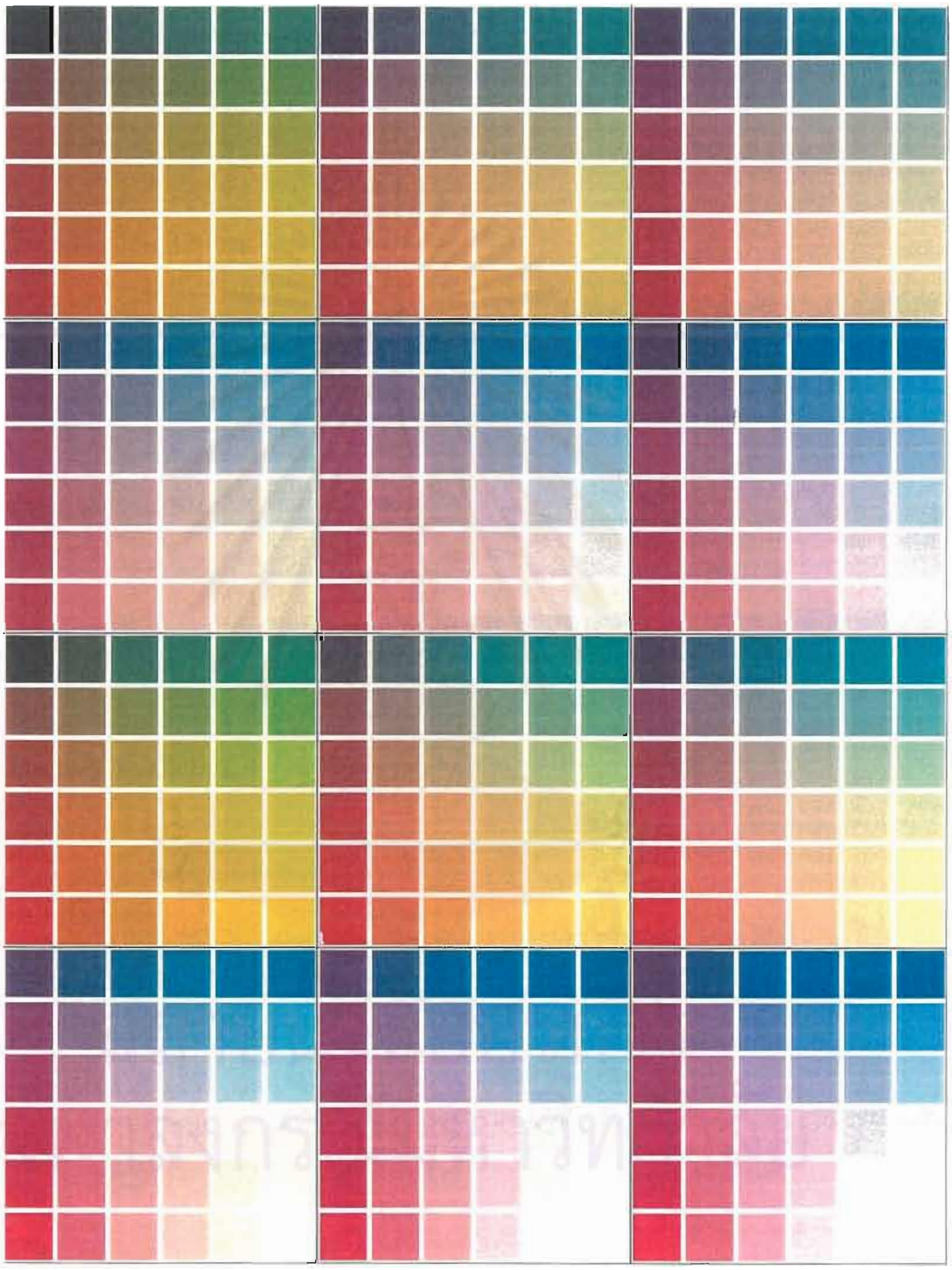


**Figure A-62 Image 8 : colour copier with embedded profile : DIC Standard**

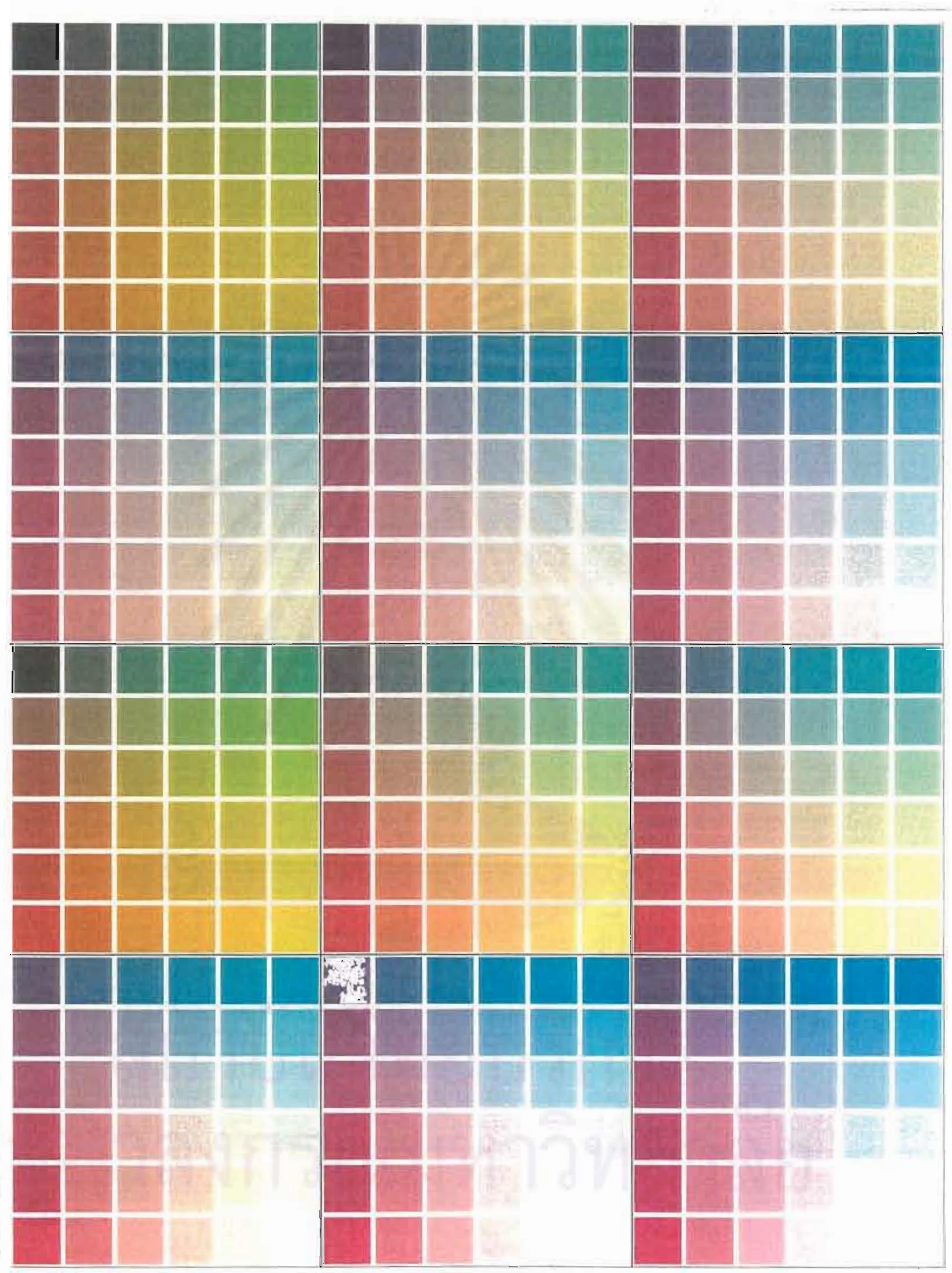


Figure A-63 Image 8 : colour copier with embedded profile : Euroscale Standard

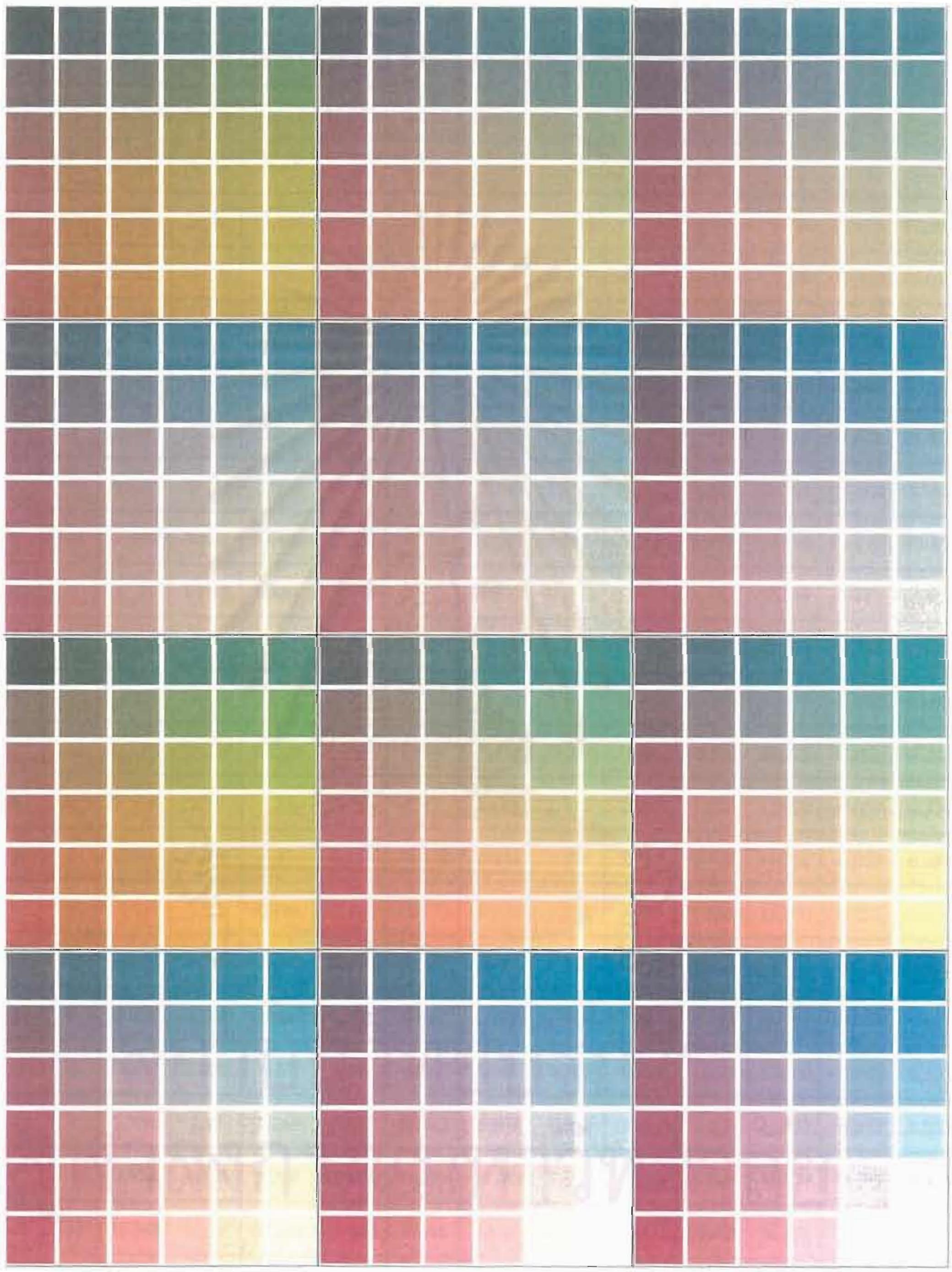


Figure A-64 Image 8 : colour copier with embedded profile : SWOP

## APPENDIX B

Table B-1 The R,G,B of SCID and the X,Y Z,L*a*b* of the offset proof and of the colour copier print.

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 149 | 133 | 123 | 35.282 | 36.392 | 28.584 | 66.81 | 0.658 | 2.314 | 37.253 | 37.453 | 25.563 | 67.530 | 4.128 | 8.675 |
| 2 | 234 | 159 | 120 | 51.784 | 49.416 | 30.512 | 75.708 | 11.122 | 14.564 | 42.090 | 39.533 | 17.897 | 68.902 | 13.333 | 26.208 |
| 3 | 151 | 134 | 189 | 40.254 | 39.696 | 44.97 | 69.248 | 6.222 | -16.398 | 34.538 | 32.613 | 32.992 | 63.853 | 10.898 | -9.677 |
| 4 | 210 | 88 | 53 | 35.392 | 28.89 | 11.202 | 60.682 | 27.46 | 29.464 | 29.393 | 24.580 | 9.395 | 56.400 | 24.430 | 27.893 |
| 5 | 74 | 170 | 93 | 25.522 | 35.028 | 19.4 | 65.748 | -31.466 | 17.54 | 24.828 | 30.743 | 17.632 | 62.068 | -18.405 | 15.022 |
| 6 | 88 | 65 | 144 | 19.382 | 17.844 | 28.828 | 49.29 | 11.392 | -28.294 | 21.387 | 19.117 | 21.667 | 50.802 | 14.733 | -12.910 |
| 7 | 39 | 29 | 39 | 2.93 | 3.148 | 2.364 | 20.538 | -2.32 | 1.994 | 5.433 | 5.653 | 3.972 | 27.937 | 2.243 | 3.020 |
| 8 | 197 | 0 | 42 | 23.712 | 13.452 | 2.292 | 43.432 | 57.068 | 42.226 | 18.027 | 11.057 | 3.200 | 39.515 | 46.612 | 28.035 |
| 9 | 0 | 145 | 57 | 8.352 | 19.214 | 5.866 | 50.85 | -67.824 | 32.746 | 7.953 | 13.307 | 8.853 | 42.568 | -34.902 | 5.963 |
| 10 | 44 | 9 | 108 | 5.696 | 3.838 | 14.406 | 23.078 | 26.072 | -44.396 | 9.067 | 8.530 | 9.973 | 34.138 | 11.133 | -12.412 |
| 11 | 245 | 242 | 0 | 57.71 | 64.99 | 6.886 | 84.478 | -11.73 | 86.032 | 46.753 | 52.190 | 4.318 | 77.243 | -9.107 | 85.957 |
| 12 | 201 | 0 | 115 | 26.588 | 13.978 | 15.97 | 44.196 | 65.974 | -11.898 | 19.287 | 11.563 | 8.018 | 40.100 | 50.580 | 4.802 |
| 13 | 0 | 158 | 237 | 18.456 | 25.174 | 49.61 | 57.202 | -27.562 | -42.594 | 8.685 | 10.097 | 24.097 | 37.237 | -5.355 | -40.917 |
| 14 | 255 | 255 | 255 | 75.904 | 78.234 | 67.234 | 90.886 | 0.964 | -2.534 | 75.240 | 78.047 | 65.562 | 90.728 | 0.288 | -1.245 |
| 15 | 0 | 0 | 0 | 2.162 | 2.25 | 1.84 | 16.744 | -0.232 | 0.188 | 1.445 | 2.083 | 1.227 | 12.097 | -0.067 | 0.370 |
| 16 | 0 | 0 | 0 | 0.664 | 0.706 | 0.59 | 6.384 | -0.698 | -0.144 | 1.395 | 2.010 | 1.178 | 11.752 | -0.057 | 0.398 |
| 17 | 0 | 0 | 0 | 1.65 | 1.126 | 0.428 | 10.002 | 16.752 | 9.168 | 1.398 | 2.023 | 1.185 | 11.780 | -0.072 | 0.390 |
| 18 | 0 | 0 | 0 | 0.992 | 1.818 | 0.796 | 14.492 | -22.752 | 10.048 | 1.392 | 1.990 | 1.175 | 11.783 | -0.063 | 0.405 |
| 19 | 0 | 0 | 0 | 0.674 | 0.582 | 1.266 | 5.264 | 4.514 | -12.974 | 1.380 | 1.977 | 1.168 | 11.700 | -0.063 | 0.417 |
| 20 | 0 | 0 | 0 | 2.63 | 3.002 | 0.67 | 20.03 | -4.862 | 21.91 | 1.382 | 1.967 | 1.175 | 11.730 | -0.042 | 0.303 |
| 21 | 0 | 0 | 0 | 1.704 | 1.11 | 1.266 | 9.872 | 18.642 | -5.076 | 1.352 | 1.927 | 1.150 | 11.532 | -0.065 | 0.327 |
| 22 | 0 | 0 | 0 | 1.124 | 1.518 | 2.288 | 12.688 | -10.384 | -11.006 | 1.363 | 1.957 | 1.158 | 11.577 | -0.105 | 0.353 |
| 23 | 245 | 208 | 181 | 63.348 | 63.35 | 47.136 | 83.626 | 5.248 | 5.808 | 55.142 | 54.933 | 33.238 | 78.398 | 8.105 | 15.057 |
| 24 | 208 | 229 | 205 | 61.862 | 66.508 | 52.918 | 85.254 | -5.2 | 2.084 | 51.025 | 56.013 | 39.238 | 79.000 | -5.105 | 7.688 |
| 25 | 201 | 190 | 226 | 56.81 | 57.244 | 55.66 | 80.316 | 4.002 | -9.358 | 45.998 | 45.647 | 42.097 | 72.668 | 8.467 | -6.937 |
| 26 | 155 | 204 | 156 | 46.31 | 53.172 | 37.686 | 77.974 | -13.51 | 7.992 | 37.258 | 43.070 | 28.787 | 71.077 | -11.160 | 9.337 |
| 27 | 248 | 252 | 253 | 74.978 | 77.468 | 67.204 | 90.538 | 0.582 | -3.112 | 72.442 | 74.567 | 64.057 | 89.038 | 1.795 | -2.728 |
| 28 | 239 | 247 | 253 | 72.982 | 75.73 | 66.698 | 89.732 | -0.076 | -4.026 | 68.143 | 69.493 | 62.645 | 86.778 | 2.357 | -5.263 |
| 29 | 233 | 243 | 254 | 71.576 | 74.486 | 66.37 | 89.148 | -0.512 | -4.726 | 64.988 | 66.320 | 61.357 | 85.263 | 1.908 | -6.618 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 218 | 235 | 253 | 68.486 | 71.684 | 65.498 | 87.812 | -1.366 | -6.21 | 59.148 | 60.217 | 58.690 | 81.832 | 3.155 | -9.872 |
| 31 | 206 | 231 | 251 | 65.758 | 69.202 | 64.736 | 86.598 | -2.144 | -7.584 | 55.968 | 57.307 | 57.662 | 80.102 | 2.848 | -11.802 |
| 32 | 195 | 225 | 251 | 62.742 | 66.472 | 63.876 | 85.234 | -3.09 | -9.114 | 50.697 | 51.187 | 55.228 | 76.890 | 3.178 | -14.810 |
| 33 | 185 | 220 | 249 | 59.522 | 63.526 | 62.938 | 83.716 | -4.082 | -10.83 | 47.302 | 47.790 | 53.722 | 74.778 | 3.038 | -16.838 |
| 34 | 157 | 208 | 249 | 53.026 | 57.596 | 61.002 | 80.506 | -6.348 | -14.47 | 42.123 | 42.977 | 50.363 | 71.145 | 3.760 | -19.418 |
| 35 | 135 | 195 | 244 | 47.442 | 52.554 | 59.528 | 77.6 | -8.772 | -18.006 | 36.405 | 37.463 | 45.975 | 67.068 | 3.290 | -21.358 |
| 36 | 111 | 187 | 242 | 41.278 | 46.902 | 57.724 | 74.114 | -11.634 | -22.188 | 31.505 | 32.933 | 43.510 | 63.512 | 1.595 | -24.497 |
| 37 | 83 | 178 | 240 | 35.17 | 41.238 | 55.798 | 70.324 | -14.924 | -26.72 | 26.112 | 27.720 | 38.888 | 58.755 | 1.177 | -26.753 |
| 38 | 56 | 169 | 240 | 29.854 | 36.294 | 54.11 | 66.724 | -18.414 | -31.144 | 20.453 | 21.850 | 34.432 | 52.878 | 1.220 | -30.698 |
| 39 | 21 | 161 | 238 | 24.318 | 30.894 | 51.906 | 62.392 | -22.106 | -36.218 | 15.668 | 16.703 | 30.583 | 47.210 | 0.347 | -34.685 |
| 40 | 253 | 247 | 249 | 75.068 | 76.964 | 66.444 | 90.304 | 1.766 | -2.802 | 71.740 | 73.117 | 62.408 | 88.433 | 2.930 | -2.180 |
| 41 | 250 | 239 | 243 | 73.138 | 74.326 | 64.582 | 89.078 | 3.08 | -3.164 | 68.077 | 68.377 | 56.945 | 86.143 | 4.967 | -0.652 |
| 42 | 250 | 233 | 239 | 71.858 | 72.572 | 63.318 | 88.242 | 4.002 | -3.396 | 65.322 | 65.143 | 52.885 | 84.357 | 6.562 | 0.580 |
| 43 | 247 | 222 | 231 | 69.222 | 69.03 | 60.68 | 86.516 | 5.814 | -3.784 | 61.990 | 60.777 | 48.245 | 82.257 | 8.023 | 2.152 |
| 44 | 247 | 210 | 223 | 66.682 | 65.666 | 58.144 | 84.826 | 7.566 | -4.154 | 58.285 | 56.540 | 43.922 | 79.628 | 10.573 | 2.778 |
| 45 | 242 | 198 | 216 | 63.944 | 62.016 | 55.362 | 82.922 | 9.646 | -4.55 | 54.867 | 51.530 | 39.852 | 76.868 | 14.023 | 3.197 |
| 46 | 239 | 187 | 208 | 61.622 | 58.928 | 53.046 | 81.252 | 11.498 | -4.956 | 53.012 | 49.163 | 37.322 | 75.445 | 15.450 | 4.128 |
| 47 | 235 | 163 | 192 | 56.79 | 52.476 | 48.146 | 77.566 | 15.82 | -5.82 | 45.595 | 41.823 | 31.143 | 70.360 | 17.295 | 4.352 |
| 48 | 230 | 139 | 177 | 51.428 | 45.388 | 42.692 | 73.146 | 21.238 | -6.87 | 41.490 | 37.280 | 27.305 | 66.383 | 22.310 | 3.740 |
| 49 | 225 | 113 | 160 | 46.49 | 38.958 | 37.552 | 68.722 | 26.892 | -7.784 | 37.127 | 31.920 | 23.078 | 62.308 | 26.160 | 4.258 |
| 50 | 217 | 88 | 147 | 41.042 | 31.956 | 31.836 | 63.306 | 34.276 | -8.876 | 32.447 | 27.263 | 18.323 | 58.163 | 28.032 | 6.803 |
| 51 | 221 | 55 | 131 | 36.424 | 26.144 | 26.904 | 58.174 | 41.726 | -9.78 | 28.907 | 23.430 | 14.520 | 54.555 | 30.477 | 9.605 |
| 52 | 205 | 0 | 118 | 31.764 | 20.316 | 21.908 | 52.188 | 51.4 | -10.978 | 26.200 | 19.903 | 12.065 | 51.182 | 34.270 | 10.487 |
| 53 | 255 | 253 | 246 | 75.78 | 78.224 | 66.428 | 90.884 | 0.724 | -1.792 | 74.263 | 76.890 | 63.825 | 90.263 | 0.273 | -0.392 |
| 54 | 255 | 254 | 237 | 75.246 | 77.932 | 64.178 | 90.75 | 0.212 | 0.104 | 72.235 | 75.710 | 57.783 | 89.625 | -1.163 | 4.490 |
| 55 | 255 | 252 | 231 | 74.662 | 77.504 | 62.498 | 90.554 | -0.14 | 1.384 | 71.127 | 75.637 | 52.150 | 89.685 | -3.757 | 10.563 |
| 56 | 255 | 252 | 219 | 73.554 | 76.724 | 58.946 | 90.192 | -0.878 | 4.29 | 69.570 | 74.323 | 47.175 | 89.143 | -4.743 | 15.270 |
| 57 | 255 | 252 | 206 | 72.61 | 76.106 | 55.414 | 89.908 | -1.602 | 7.442 | 66.610 | 70.967 | 41.563 | 87.497 | -4.102 | 19.297 |
| 58 | 254 | 252 | 194 | 71.4 | 75.238 | 51.526 | 89.504 | -2.406 | 10.942 | 66.422 | 72.403 | 37.923 | 88.000 | -6.695 | 24.953 |
| 59 | 255 | 249 | 180 | 70.604 | 74.7 | 48.576 | 89.254 | -3.012 | 13.836 | 66.088 | 72.890 | 36.590 | 88.185 | -8.235 | 27.112 |
| 60 | 255 | 250 | 155 | 68.458 | 73.22 | 41.084 | 88.552 | -4.604 | 21.738 | 64.138 | 71.203 | 29.515 | 87.380 | -9.133 | 36.255 |
| 61 | 252 | 248 | 126 | 66.406 | 71.758 | 34.27 | 87.854 | -6.084 | 29.83 | 60.007 | 66.907 | 22.970 | 84.978 | -8.373 | 43.537 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | 252 | 247 | 98 | 64.218 | 70.106 | 27.562 | 87.048 | -7.53 | 38.904 | 59.098 | 66.473 | 19.597 | 84.692 | -9.318 | 49.780 |
| 63 | 251 | 245 | 66 | 62.252 | 68.624 | 21.168 | 86.318 | -8.88 | 49.348 | 57.605 | 64.833 | 16.402 | 83.985 | -9.867 | 55.692 |
| 64 | 247 | 244 | 0 | 60.726 | 67.392 | 16.496 | 85.7 | -9.778 | 58.426 | 55.880 | 63.253 | 13.158 | 83.005 | -9.883 | 62.262 |
| 65 | 247 | 243 | 0 | 59.202 | 66.26 | 11.592 | 85.13 | -10.93 | 70.444 | 52.175 | 58.200 | 5.535 | 80.643 | -9.135 | 85.392 |
| 66 | 248 | 248 | 248 | 73.908 | 76.172 | 65.566 | 89.938 | 0.958 | -2.61 | 71.942 | 74.260 | 62.685 | 88.893 | 1.363 | -1.657 |
| 67 | 238 | 238 | 238 | 70.706 | 72.89 | 62.822 | 88.394 | 0.912 | -2.65 | 65.773 | 67.590 | 56.247 | 85.697 | 1.798 | -0.690 |
| 68 | 231 | 231 | 231 | 68.5 | 70.628 | 60.962 | 87.304 | 0.876 | -2.716 | 62.355 | 63.463 | 51.585 | 83.622 | 2.977 | 0.732 |
| 69 | 219 | 219 | 219 | 64.18 | 66.188 | 57.296 | 85.092 | 0.816 | -2.824 | 55.348 | 56.483 | 45.527 | 79.895 | 2.202 | 1.282 |
| 70 | 205 | 205 | 205 | 60.042 | 61.948 | 53.706 | 82.884 | 0.748 | -2.852 | 51.302 | 52.657 | 42.385 | 77.460 | 2.318 | 0.948 |
| 71 | 192 | 192 | 192 | 56.092 | 57.892 | 50.3 | 80.676 | 0.68 | -2.912 | 50.352 | 51.463 | 41.488 | 76.893 | 2.243 | 1.112 |
| 72 | 181 | 181 | 181 | 52.468 | 54.168 | 47.18 | 78.558 | 0.626 | -2.982 | 48.682 | 49.467 | 39.260 | 75.690 | 2.928 | 1.937 |
| 73 | 155 | 155 | 155 | 44.412 | 45.88 | 40.112 | 73.47 | 0.5 | -3.016 | 42.292 | 43.253 | 34.133 | 71.463 | 2.895 | 1.768 |
| 74 | 132 | 132 | 132 | 36.308 | 37.534 | 32.918 | 67.674 | 0.382 | -2.974 | 36.865 | 39.037 | 29.785 | 67.868 | 1.330 | 2.213 |
| 75 | 105 | 105 | 105 | 28.474 | 29.47 | 25.958 | 61.194 | 0.232 | -2.942 | 32.152 | 33.757 | 25.225 | 63.792 | 2.707 | 2.858 |
| 76 | 80 | 80 | 80 | 20.386 | 21.12 | 18.644 | 53.078 | 0.108 | -2.722 | 25.468 | 26.350 | 19.035 | 57.483 | 3.995 | 4.065 |
| 77 | 54 | 54 | 54 | 14.228 | 14.76 | 13.048 | 45.296 | -0.022 | -2.466 | 18.493 | 19.260 | 13.290 | 50.187 | 3.015 | 5.328 |
| 78 | 28 | 28 | 28 | 8.48 | 8.812 | 7.746 | 35.614 | -0.132 | -1.906 | 12.163 | 12.797 | 8.647 | 41.663 | 2.167 | 5.133 |
| 79 | 42 | 20 | 79 | 4.778 | 3.656 | 10.568 | 22.43 | 17.644 | -34.492 | 9.603 | 8.847 | 8.985 | 35.942 | 7.873 | -5.958 |
| 80 | 23 | 100 | 182 | 15.122 | 19.17 | 38.808 | 50.852 | -18.702 | -40.276 | 9.692 | 10.523 | 20.943 | 38.705 | -3.342 | -32.318 |
| 81 | 21 | 100 | 124 | 12.462 | 17.872 | 26.782 | 49.294 | -28.944 | -24.856 | 9.822 | 11.540 | 18.070 | 40.500 | -10.038 | -23.142 |
| 82 | 0 | 152 | 158 | 15.762 | 24.44 | 34.198 | 56.484 | -39.314 | -24.134 | 10.875 | 13.510 | 22.050 | 43.468 | -14.757 | -26.302 |
| 83 | 0 | 98 | 39 | 7.248 | 14.844 | 5.436 | 45.362 | -54.102 | 25.336 | 7.878 | 11.180 | 7.763 | 39.990 | -24.362 | 5.570 |
| 84 | 141 | 199 | 0 | 37.698 | 47.244 | 7.564 | 74.33 | -23.822 | 65.84 | 28.675 | 34.137 | 3.883 | 65.423 | -17.238 | 68.183 |
| 85 | 82 | 69 | 67 | 14.526 | 15.332 | 10.94 | 46.066 | -1.62 | 5.094 | 20.940 | 20.040 | 12.493 | 52.258 | 6.300 | 11.095 |
| 86 | 140 | 131 | 0 | 28.9 | 32.396 | 5.686 | 63.652 | -8.802 | 55.628 | 27.197 | 28.847 | 3.398 | 60.970 | -3.877 | 63.655 |
| 87 | 227 | 161 | 0 | 44.224 | 44.25 | 5.936 | 72.39 | 4.586 | 69.506 | 33.270 | 32.607 | 3.473 | 63.695 | 7.175 | 67.847 |
| 88 | 128 | 13 | 31 | 15.176 | 9.308 | 2.546 | 36.55 | 43.364 | 28.25 | 15.475 | 10.763 | 4.335 | 39.145 | 34.015 | 20.182 |
| 89 | 199 | 0 | 85 | 25.988 | 14.21 | 12.09 | 44.524 | 62.088 | -1.046 | 19.605 | 12.227 | 7.043 | 41.283 | 47.108 | 10.722 |
| 90 | 132 | 0 | 80 | 16.972 | 9.688 | 11.248 | 37.262 | 50.596 | -11.07 | 16.565 | 11.220 | 8.255 | 39.748 | 37.653 | 3.282 |
| 91 | 134 | 0 | 112 | 18.23 | 10.152 | 16.022 | 38.096 | 53.754 | -22.532 | 16.778 | 11.147 | 9.152 | 39.628 | 39.357 | -0.180 |
| 92 | 87 | 66 | 121 | 17.828 | 16.934 | 24.714 | 48.154 | 8.242 | -23.194 | 23.045 | 20.600 | 20.505 | 52.648 | 14.390 | -7.387 |
| 93 | 38 | 60 | 122 | 9.888 | 11.312 | 23.7 | 40.068 | -7.822 | -35.274 | 10.507 | 10.960 | 16.613 | 39.497 | -0.398 | -21.543 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | 87 | 145 | 176 | 29.216 | 34.398 | 42.128 | 65.26 | -14.508 | -19.752 | 26.038 | 27.300 | 30.022 | 59.330 | -1.525 | -12.910 |
| 95 | 0 | 124 | 93 | 11.062 | 19.726 | 16.734 | 51.474 | -48.272 | -1.104 | 10.578 | 13.773 | 15.632 | 43.895 | -18.805 | -11.610 |
| 96 | 79 | 142 | 85 | 22.786 | 30.302 | 17.952 | 61.894 | -26.75 | 14.05 | 23.758 | 28.190 | 16.037 | 60.053 | -14.362 | 15.268 |
| 97 | 72 | 141 | 19 | 19.646 | 28.19 | 6.46 | 60.028 | -33.662 | 45.85 | 18.415 | 23.217 | 3.712 | 55.707 | -21.162 | 52.513 |
| 98 | 195 | 184 | 70 | 47.046 | 51.218 | 19.414 | 76.804 | -6.414 | 36.558 | 38.303 | 40.467 | 14.263 | 69.882 | -2.627 | 36.658 |
| 99 | 172 | 83 | 8 | 28 | 24.298 | 4.22 | 56.374 | 19.098 | 50.868 | 24.535 | 21.630 | 2.803 | 53.732 | 16.285 | 55.468 |
| 100 | 175 | 83 | 58 | 30.41 | 25.964 | 11.892 | 57.992 | 21.376 | 22.772 | 27.350 | 23.813 | 10.085 | 55.743 | 19.272 | 24.460 |
| 101 | 164 | 0 | 57 | 21.07 | 12.218 | 6.918 | 41.536 | 53.102 | 11.774 | 17.898 | 11.960 | 7.097 | 40.845 | 40.165 | 9.765 |
| 102 | 178 | 81 | 97 | 32.904 | 27.318 | 21.228 | 59.26 | 24.968 | 2.568 | 28.380 | 24.337 | 13.262 | 56.248 | 21.173 | 15.837 |
| 103 | 179 | 82 | 122 | 34.198 | 27.876 | 26.636 | 59.77 | 27.312 | -6.556 | 29.830 | 25.127 | 17.000 | 56.998 | 23.500 | 7.747 |
| 104 | 84 | 0 | 94 | 11.15 | 6.84 | 13.804 | 31.41 | 39.122 | -28.434 | 14.375 | 10.570 | 9.433 | 38.722 | 29.247 | -2.725 |
| 105 | 35 | 62 | 69 | 6.076 | 9.1 | 9.764 | 36.126 | -26.088 | -8.236 | 9.648 | 11.060 | 11.190 | 39.820 | -8.505 | -6.513 |
| 106 | 153 | 169 | 140 | 41.628 | 45.806 | 34.224 | 73.412 | -7.536 | 4.998 | 38.715 | 40.963 | 27.387 | 70.158 | -2.512 | 10.060 |
| 107 | 81 | 113 | 78 | 19.856 | 24.824 | 15.072 | 56.884 | -18.994 | 12.23 | 24.058 | 26.050 | 15.155 | 58.367 | -5.787 | 14.520 |
| 108 | 30 | 63 | 39 | 5.042 | 8.868 | 3.904 | 35.68 | -36.31 | 17.048 | 8.008 | 10.137 | 6.928 | 38.165 | -15.308 | 5.805 |
| 109 | 200 | 188 | 179 | 55.048 | 56.594 | 46.734 | 79.946 | 1.21 | -0.062 | 45.202 | 46.013 | 32.837 | 73.417 | 2.993 | 7.043 |
| 110 | 199 | 186 | 138 | 51.608 | 54.202 | 35.478 | 78.572 | -1.706 | 12.098 | 42.543 | 43.613 | 24.917 | 72.152 | 0.672 | 17.798 |
| 111 | 144 | 132 | 72 | 32.028 | 34.508 | 15.852 | 65.354 | -4.45 | 24.894 | 31.948 | 32.920 | 14.712 | 64.417 | -0.642 | 26.078 |
| 112 | 79 | 71 | 33 | 12.592 | 14.092 | 3.984 | 44.342 | -6.57 | 31.524 | 16.860 | 17.020 | 5.305 | 48.718 | 0.632 | 31.460 |
| 113 | 190 | 146 | 120 | 44.644 | 44.006 | 30.246 | 72.228 | 6.506 | 8.982 | 36.585 | 35.787 | 19.142 | 66.097 | 8.088 | 18.668 |
| 114 | 78 | 26 | 35 | 8.55 | 6.044 | 2.492 | 29.488 | 26.742 | 16.484 | 13.648 | 11.317 | 6.407 | 39.992 | 19.147 | 11.242 |
| 115 | 193 | 146 | 156 | 46.952 | 45.34 | 39.13 | 73.112 | 9.248 | -2.334 | 38.685 | 36.587 | 26.650 | 66.748 | 12.073 | 5.452 |
| 116 | 141 | 76 | 98 | 25.868 | 22.362 | 19.87 | 54.398 | 18.99 | -3.042 | 26.055 | 23.117 | 15.038 | 54.918 | 17.537 | 8.887 |
| 117 | 81 | 21 | 57 | 9.21 | 6.108 | 6.068 | 29.652 | 31.662 | -4.956 | 13.892 | 10.807 | 7.793 | 39.017 | 24.973 | 3.770 |
| 118 | 22 | 23 | 24 | 6.48 | 7.128 | 6.322 | 32.084 | -3.98 | -2.014 | 11.055 | 10.987 | 7.678 | 40.002 | 1.490 | 5.932 |
| 119 | 0 | 0 | 0 | 1.18 | 1.306 | 1.09 | 11.306 | -2.572 | -0.164 | 1.540 | 1.973 | 1.315 | 12.970 | -0.060 | 0.142 |
| 120 | 40 | 45 | 46 | 9.384 | 10.896 | 9.372 | 39.39 | -8.838 | -1.308 | 14.047 | 14.120 | 10.237 | 44.695 | 1.452 | 4.898 |
| 121 | 27 | 30 | 32 | 6.704 | 7.772 | 6.778 | 33.492 | -7.774 | -1.562 | 11.303 | 11.503 | 7.942 | 40.343 | 1.838 | 5.483 |
| 122 | 14 | 15 | 16 | 3.804 | 4.408 | 3.92 | 24.968 | -6.434 | -1.766 | 6.902 | 7.043 | 5.017 | 31.945 | 0.925 | 4.015 |
| 123 | 0 | 0 | 0 | 0.946 | 1.104 | 0.908 | 9.798 | -4.272 | 0.066 | 1.525 | 1.920 | 1.302 | 12.877 | -0.003 | 0.118 |
| 124 | 15 | 18 | 21 | 2.768 | 3.714 | 3.402 | 22.65 | -13.838 | -2.358 | 5.383 | 5.533 | 4.232 | 28.457 | -0.542 | 2.348 |
| 125 | 7 | 10 | 11 | 1.696 | 2.252 | 2.02 | 16.73 | -11.376 | -1.558 | 3.165 | 3.423 | 2.467 | 21.273 | -0.605 | 2.203 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | 0 | 0 | 0 | 0.696 | 0.88 | 0.748 | 7.956 | -6.25 | -0.402 | 1.455 | 1.957 | 1.243 | 12.345 | -0.013 | 0.150 |
| 127 | 86 | 114 | 124 | 23.096 | 26.728 | 28.166 | 58.71 | -11.578 | -10.96 | 26.093 | 26.707 | 23.555 | 58.768 | 1.068 | -2.767 |
| 128 | 155 | 170 | 180 | 44.718 | 47.784 | 45.234 | 74.68 | -3.874 | -7.344 | 39.283 | 40.003 | 35.122 | 69.397 | 2.557 | -3.222 |
| 129 | 40 | 25 | 58 | 3.736 | 3.336 | 5.962 | 21.28 | 8.074 | -18.932 | 8.637 | 8.367 | 7.560 | 34.647 | 5.348 | -2.817 |
| 130 | 150 | 133 | 155 | 37.778 | 37.992 | 37.466 | 68.008 | 3.73 | -8.89 | 37.008 | 36.440 | 29.750 | 66.757 | 6.660 | 0.325 |
| 131 | 124 | 125 | 127 | 35.276 | 36.822 | 32.882 | 67.14 | -0.77 | -3.838 | 35.517 | 36.413 | 28.277 | 66.918 | 1.017 | 2.993 |
| 132 | 83 | 84 | 86 | 23.222 | 24.296 | 21.812 | 56.382 | -0.914 | -3.57 | 26.137 | 25.743 | 19.565 | 58.137 | 4.017 | 4.038 |
| 133 | 43 | 43 | 43 | 12.04 | 12.624 | 11.424 | 42.192 | -0.924 | -3.132 | 16.128 | 16.140 | 11.215 | 47.288 | 2.678 | 6.292 |
| 134 | 0 | 0 | 0 | 1.736 | 1.832 | 1.556 | 14.568 | -0.74 | -0.522 | 1.410 | 1.883 | 1.203 | 12.102 | -0.033 | 0.183 |
| 135 | 138 | 141 | 142 | 37.356 | 39.73 | 35.724 | 69.27 | -3.072 | -4.286 | 37.373 | 37.807 | 30.350 | 67.993 | 2.512 | 1.507 |
| 136 | 123 | 126 | 127 | 33.728 | 35.862 | 32.262 | 66.412 | -2.958 | -4.162 | 34.983 | 34.963 | 28.062 | 66.088 | 2.765 | 1.927 |
| 137 | 93 | 96 | 97 | 25.86 | 27.542 | 24.95 | 59.468 | -2.868 | -4.118 | 27.765 | 27.083 | 21.778 | 59.553 | 4.492 | 1.985 |
| 138 | 63 | 65 | 66 | 17.224 | 18.358 | 16.766 | 49.924 | -2.57 | -3.926 | 20.375 | 19.920 | 14.843 | 52.152 | 4.030 | 4.615 |
| 139 | 33 | 33 | 33 | 9.15 | 9.762 | 8.954 | 37.408 | -2.158 | -3.304 | 13.642 | 13.810 | 9.777 | 43.858 | 2.428 | 5.015 |
| 140 | 0 | 0 | 0 | 1.384 | 1.492 | 1.296 | 12.536 | -1.624 | -0.82 | 1.517 | 1.890 | 1.302 | 12.837 | -0.012 | 0.022 |
| 141 | 83 | 89 | 89 | 21.658 | 23.674 | 21.08 | 55.752 | -5.382 | -3.182 | 24.750 | 24.550 | 18.427 | 56.698 | 4.370 | 4.003 |
| 142 | 64 | 68 | 69 | 16.734 | 18.31 | 16.304 | 49.862 | -5.026 | -2.934 | 20.065 | 20.063 | 14.622 | 51.932 | 3.457 | 4.797 |
| 143 | 43 | 46 | 46 | 11.51 | 12.626 | 11.328 | 42.18 | -4.646 | -2.852 | 15.937 | 15.997 | 11.410 | 47.127 | 2.273 | 5.415 |
| 144 | 203 | 204 | 207 | 58.48 | 60.878 | 53.658 | 82.308 | -0.526 | -3.786 | 50.347 | 51.083 | 41.333 | 76.882 | 2.255 | 1.295 |
| 145 | 153 | 156 | 158 | 40.992 | 43.54 | 38.794 | 71.914 | -3.006 | -3.942 | 40.683 | 41.180 | 32.675 | 70.278 | 3.112 | 1.878 |
| 146 | 104 | 111 | 111 | 25.498 | 27.912 | 24.838 | 59.8 | -5.846 | -3.34 | 30.698 | 30.933 | 23.773 | 62.613 | 2.543 | 3.438 |
| 147 | 65 | 74 | 76 | 13.026 | 15.144 | 13.116 | 45.814 | -10.014 | -1.708 | 18.565 | 18.927 | 13.863 | 50.560 | 1.803 | 4.400 |
| 148 | 37 | 44 | 49 | 5.004 | 6.758 | 6.138 | 31.202 | -17.356 | -2.614 | 9.238 | 10.070 | 8.277 | 37.998 | -3.992 | 0.173 |
| 149 | 208 | 208 | 208 | 62.1 | 64.302 | 56.128 | 84.12 | 0.236 | -3.284 | 49.817 | 50.163 | 41.250 | 76.450 | 2.700 | 0.657 |
| 150 | 185 | 185 | 185 | 54.698 | 56.644 | 49.666 | 79.976 | 0.206 | -3.402 | 48.203 | 48.457 | 38.947 | 75.517 | 2.343 | 2.060 |
| 151 | 140 | 140 | 140 | 40.62 | 42.134 | 37.306 | 70.964 | -0.018 | -3.578 | 37.757 | 38.470 | 29.893 | 68.285 | 2.495 | 2.735 |
| 152 | 95 | 95 | 95 | 26.502 | 27.526 | 24.542 | 59.456 | -0.16 | -3.418 | 27.203 | 27.583 | 20.355 | 59.172 | 3.815 | 4.212 |
| 153 | 49 | 49 | 49 | 13.6 | 14.154 | 12.68 | 44.452 | -0.32 | -2.9 | 16.990 | 16.867 | 11.777 | 48.137 | 3.750 | 6.100 |
| 154 | 0 | 0 | 0 | 2.032 | 2.126 | 1.786 | 16.09 | -0.422 | -0.342 | 1.502 | 1.903 | 1.290 | 12.715 | 0.002 | 0.040 |
| 155 | 184 | 185 | 187 | 53.132 | 55.322 | 48.862 | 79.226 | -0.542 | -3.784 | 47.962 | 49.123 | 38.952 | 75.332 | 2.493 | 1.727 |
| 156 | 164 | 165 | 167 | 46.37 | 48.322 | 42.88 | 75.026 | -0.622 | -3.868 | 44.222 | 45.150 | 35.597 | 72.727 | 3.140 | 1.845 |
| 157 | 0 | 89 | 35 | 6.312 | 14.13 | 4.628 | 44.37 | -59.142 | 27.834 | 7.738 | 10.693 | 7.403 | 39.240 | -22.473 | 5.707 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 158 | 26 | 4 | 66 | 4.788 | 3.33 | 11.648 | 21.26 | 23 | -39.856 | 8.605 | 8.033 | 7.818 | 34.275 | 6.713 | -4.498 |
| 159 | 188 | 129 | 96 | 42.222 | 40.378 | 25.068 | 69.738 | 10.126 | 13.37 | 33.597 | 31.137 | 15.222 | 62.690 | 12.660 | 21.812 |
| 160 | 125 | 164 | 127 | 38.002 | 43.772 | 31.73 | 72.072 | -13.05 | 6.406 | 34.147 | 37.627 | 26.213 | 67.532 | -6.308 | 7.547 |
| 161 | 123 | 108 | 152 | 32.738 | 32.346 | 37.028 | 63.624 | 5.592 | -15.848 | 29.712 | 27.717 | 26.742 | 59.523 | 12.173 | -7.168 |
| 162 | 159 | 0 | 34 | 20.766 | 11.972 | 2.476 | 41.156 | 53.3 | 36.776 | 16.188 | 10.670 | 3.717 | 39.023 | 38.657 | 23.703 |
| 163 | 0 | 117 | 45 | 8.442 | 18.342 | 6.158 | 49.852 | -62.41 | 29.682 | 7.433 | 11.080 | 7.960 | 40.192 | -29.423 | 5.162 |
| 164 | 34 | 7 | 87 | 5.688 | 3.964 | 13.924 | 23.482 | 24.19 | -42.42 | 8.693 | 8.007 | 8.843 | 33.912 | 9.063 | -8.945 |
| 165 | 198 | 195 | 0 | 49.614 | 56.074 | 7.194 | 79.654 | -11.634 | 76.448 | 34.825 | 38.557 | 3.792 | 68.092 | -6.392 | 73.363 |
| 166 | 162 | 0 | 93 | 23.784 | 12.912 | 15.176 | 42.622 | 60.878 | -12.656 | 18.405 | 12.103 | 8.520 | 41.078 | 41.823 | 4.600 |
| 167 | 0 | 127 | 191 | 17.562 | 23.682 | 43.528 | 55.74 | -25.968 | -37.922 | 9.808 | 10.827 | 21.990 | 38.877 | -3.203 | -34.092 |
| 168 | 241 | 241 | 241 | 72.346 | 74.698 | 64.758 | 89.25 | 0.674 | -3.036 | 65.807 | 66.830 | 56.043 | 85.490 | 2.762 | -0.833 |
| 169 | 230 | 230 | 230 | 68.154 | 70.506 | 61.056 | 87.242 | 0.372 | -2.908 | 58.105 | 59.153 | 48.440 | 81.342 | 2.752 | 0.350 |
| 170 | 74 | 50 | 38 | 16.014 | 15.4 | 9.596 | 46.17 | 6.828 | 9.576 | 19.918 | 18.597 | 10.885 | 50.340 | 9.615 | 12.562 |
| 171 | 49 | 65 | 50 | 14.902 | 17.182 | 12.586 | 48.48 | -9.652 | 4.318 | 17.247 | 17.837 | 12.228 | 49.720 | -1.588 | 7.465 |
| 172 | 49 | 42 | 59 | 12.254 | 12.1 | 14.12 | 41.372 | 4.082 | -12.128 | 16.703 | 16.010 | 13.258 | 47.212 | 6.248 | 0.253 |
| 173 | 62 | 0 | 13 | 8.864 | 5.292 | 1.31 | 27.532 | 37.998 | 25.084 | 12.547 | 10.320 | 5.585 | 38.337 | 19.148 | 12.165 |
| 174 | 0 | 46 | 18 | 4.084 | 8.466 | 3.056 | 34.894 | -45.51 | 21.356 | 6.955 | 8.673 | 6.082 | 35.360 | -13.272 | 4.695 |
| 175 | 14 | 0 | 34 | 2.858 | 2.078 | 6.79 | 15.83 | 17.376 | -32.08 | 6.803 | 6.517 | 5.698 | 30.982 | 4.058 | -1.047 |
| 176 | 78 | 77 | 0 | 20.31 | 23.216 | 3.408 | 55.288 | -9.806 | 53.906 | 18.703 | 19.190 | 4.157 | 51.443 | -1.303 | 42.405 |
| 177 | 63 | 0 | 36 | 10.232 | 5.712 | 7.042 | 28.666 | 44.178 | -11.034 | 12.610 | 9.747 | 7.003 | 37.610 | 22.700 | 4.537 |
| 178 | 0 | 49 | 75 | 7.686 | 10.382 | 18.722 | 38.508 | -19.836 | -28.002 | 8.620 | 9.833 | 12.103 | 37.370 | -6.555 | -13.445 |
| 179 | 142 | 97 | 73 | 32.796 | 31.446 | 19.762 | 62.88 | 9.006 | 11.794 | 28.125 | 26.487 | 14.017 | 58.453 | 10.652 | 17.603 |
| 180 | 96 | 125 | 95 | 29.772 | 34.2 | 25.206 | 65.118 | -11.71 | 5.154 | 27.565 | 30.360 | 19.695 | 61.982 | -6.793 | 10.400 |
| 181 | 93 | 82 | 117 | 24.662 | 24.32 | 28.064 | 56.402 | 5.286 | -14.782 | 25.247 | 23.317 | 21.698 | 55.462 | 11.843 | -4.935 |
| 182 | 121 | 0 | 26 | 16.326 | 9.26 | 1.744 | 36.47 | 50.432 | 35.502 | 15.222 | 10.533 | 4.828 | 38.687 | 34.517 | 16.648 |
| 183 | 201 | 0 | 101 | 27.77 | 15.44 | 16.04 | 46.23 | 61.97 | -8.57 | 19.655 | 11.557 | 8.013 | 40.497 | 32.251 | 5.478 |
| 184 | 217 | 86 | 120 | 40.77 | 32.39 | 28.33 | 63.66 | 31.9 | -2.7 | 30.897 | 24.313 | 14.773 | 56.732 | 26.945 | 12.670 |
| 185 | 243 | 160 | 156 | 55.44 | 52.28 | 41.54 | 77.45 | 12.99 | 2.01 | 43.802 | 39.170 | 25.200 | 69.093 | 27.512 | 12.023 |
| 186 | 248 | 208 | 181 | 64.5 | 64.86 | 49.15 | 84.41 | 4.49 | 4.82 | 54.508 | 52.083 | 33.282 | 77.663 | 28.985 | 13.705 |
| 187 | 250 | 230 | 193 | 69.03 | 71.04 | 52.95 | 87.5 | 1.15 | 5.93 | 60.445 | 61.103 | 38.145 | 82.573 | 28.942 | 15.300 |
| 188 | 255 | 252 | 206 | 72.48 | 75.94 | 55.57 | 89.83 | -1.55 | 7.15 | 66.020 | 69.497 | 41.910 | 86.947 | 28.828 | 17.907 |
| 189 | 201 | 0 | 108 | 27.65 | 15.05 | 16.89 | 45.71 | 63.74 | -11.48 | 19.733 | 11.553 | 8.422 | 40.505 | 32.512 | 3.957 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 190 | 218 | 86 | 134 | 41.32 | 32.41 | 31 | 63.68 | 33.52 | -6.94 | 31.333 | 24.410 | 16.177 | 56.823 | 27.715 | 9.372 |
| 191 | 234 | 161 | 173 | 56.53 | 52.81 | 45.69 | 77.76 | 14.35 | -2.59 | 44.928 | 39.497 | 29.117 | 69.538 | 29.297 | 6.148 |
| 192 | 246 | 207 | 202 | 66.18 | 65.82 | 54.74 | 84.9 | 6.11 | -0.47 | 55.797 | 52.713 | 38.073 | 78.015 | 31.031 | 7.533 |
| 193 | 251 | 232 | 219 | 70.75 | 72.17 | 58.84 | 88.05 | 2.48 | 0.7 | 62.482 | 62.087 | 45.128 | 83.137 | 31.834 | 7.353 |
| 194 | 255 | 252 | 231 | 74.39 | 77.23 | 62.12 | 90.43 | -0.15 | 1.53 | 70.623 | 74.877 | 51.727 | 89.388 | 31.817 | 10.522 |
| 195 | 201 | 0 | 115 | 28.01 | 15.42 | 17.59 | 46.2 | 63.04 | -12.24 | 19.207 | 11.067 | 8.177 | 39.757 | 32.701 | 3.578 |
| 196 | 217 | 88 | 147 | 42.41 | 33.57 | 33.36 | 64.62 | 32.73 | -8.9 | 30.928 | 23.900 | 17.813 | 56.385 | 28.283 | 4.815 |
| 197 | 235 | 163 | 192 | 58.28 | 54.39 | 49.78 | 78.69 | 14.6 | -5.76 | 44.003 | 38.860 | 30.955 | 68.802 | 29.559 | 1.957 |
| 198 | 247 | 210 | 223 | 67.47 | 66.75 | 58.93 | 85.38 | 6.93 | -4 | 56.527 | 53.377 | 42.958 | 78.073 | 32.616 | 1.290 |
| 199 | 250 | 233 | 239 | 71.75 | 72.62 | 63.25 | 88.26 | 3.69 | -3.29 | 63.623 | 61.720 | 52.017 | 82.947 | 34.893 | -0.903 |
| 200 | 255 | 255 | 255 | 75.52 | 77.84 | 66.9 | 90.71 | 0.94 | -2.53 | 74.338 | 76.780 | 64.747 | 90.307 | 36.963 | -1.198 |
| 201 | 183 | 0 | 97 | 25.98 | 14.5 | 15.86 | 44.94 | 60.26 | -10.37 | 18.968 | 11.507 | 8.447 | 40.607 | 30.566 | 4.035 |
| 202 | 199 | 83 | 121 | 38.29 | 30.82 | 27.95 | 62.35 | 29.78 | -4.34 | 30.042 | 24.683 | 16.010 | 57.015 | 25.127 | 10.100 |
| 203 | 213 | 154 | 156 | 52.22 | 49.85 | 40.99 | 75.98 | 11.11 | 0.18 | 39.198 | 35.740 | 25.352 | 66.617 | 25.072 | 7.483 |
| 204 | 223 | 197 | 180 | 60.3 | 61.35 | 48.28 | 82.56 | 2.73 | 2.65 | 48.643 | 47.640 | 32.650 | 74.930 | 25.812 | 9.933 |
| 205 | 227 | 219 | 193 | 64.35 | 67.05 | 52.26 | 85.53 | -0.68 | 3.28 | 53.065 | 54.023 | 36.293 | 78.845 | 25.693 | 11.417 |
| 206 | 232 | 141 | 208 | 67.5 | 71.56 | 54.62 | 87.76 | -3.27 | 4.57 | 60.475 | 64.063 | 42.020 | 84.295 | 26.744 | 13.197 |
| 207 | 183 | 0 | 105 | 25.62 | 14.1 | 16.83 | 44.37 | 61.22 | -13.65 | 18.913 | 11.460 | 8.715 | 40.450 | 30.668 | 2.783 |
| 208 | 199 | 84 | 134 | 38.34 | 30.49 | 30.47 | 62.08 | 31.13 | -8.88 | 30.733 | 24.750 | 18.362 | 57.177 | 26.537 | 4.963 |
| 209 | 212 | 154 | 173 | 52.52 | 49.78 | 45.07 | 75.94 | 12.07 | -4.99 | 39.527 | 35.310 | 27.973 | 66.438 | 26.521 | 2.670 |
| 210 | 223 | 200 | 203 | 61.37 | 61.82 | 53.77 | 82.82 | 4.17 | -3.04 | 50.013 | 48.267 | 38.328 | 75.353 | 28.021 | 2.602 |
| 211 | 229 | 221 | 215 | 65.68 | 67.86 | 57.9 | 85.93 | 0.56 | -1.99 | 54.917 | 55.097 | 43.135 | 79.412 | 28.445 | 3.378 |
| 212 | 232 | 241 | 230 | 68.93 | 72.46 | 61.2 | 88.19 | -2 | -1.42 | 62.630 | 64.733 | 51.075 | 84.585 | 30.730 | 2.958 |
| 213 | 184 | 0 | 113 | 25.7 | 14.24 | 17.41 | 44.57 | 60.71 | -14.64 | 18.370 | 11.150 | 8.622 | 39.828 | 30.400 | 2.050 |
| 214 | 200 | 84 | 146 | 39.4 | 31.68 | 33.07 | 63.08 | 30.18 | -11.14 | 30.183 | 23.880 | 19.545 | 56.277 | 27.371 | 0.865 |
| 215 | 215 | 155 | 190 | 54.06 | 51.12 | 48.99 | 76.75 | 12.52 | -8.19 | 40.153 | 35.803 | 31.293 | 66.737 | 27.581 | -2.127 |
| 216 | 224 | 200 | 221 | 62.84 | 62.94 | 58.04 | 83.41 | 5 | -6.48 | 49.792 | 47.300 | 42.798 | 74.625 | 29.944 | -4.457 |
| 217 | 229 | 221 | 237 | 67.08 | 68.67 | 62.34 | 86.34 | 1.92 | -5.73 | 56.740 | 55.250 | 51.790 | 79.553 | 32.295 | -6.507 |
| 218 | 233 | 243 | 254 | 70.62 | 73.58 | 65.9 | 88.72 | -0.69 | -5.02 | 63.438 | 64.267 | 60.728 | 84.363 | 34.068 | -7.550 |
| 219 | 167 | 0 | 98 | 23.43 | 13.16 | 15.41 | 43 | 57.71 | -12.61 | 18.235 | 11.390 | 8.740 | 40.387 | 29.111 | 2.588 |
| 220 | 179 | 82 | 122 | 35.11 | 28.74 | 27.69 | 60.55 | 27.1 | -7.02 | 30.472 | 25.230 | 17.880 | 57.530 | 25.413 | 6.645 |
| 221 | 193 | 146 | 156 | 48.03 | 46.63 | 40.56 | 73.95 | 8.62 | -2.77 | 38.795 | 36.197 | 27.223 | 66.915 | 24.326 | 4.750 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 222 | 200 | 188 | 179 | 55.35 | 57.14 | 47.62 | 80.26 | 0.64 | -0.56 | 44.587 | 44.577 | 33.345 | 73.045 | 23.511 | 5.657 |
| 223 | 204 | 209 | 194 | 58.9 | 62.26 | 51.13 | 83.05 | -2.7 | 0.26 | 46.540 | 48.203 | 35.507 | 75.212 | 22.858 | 6.255 |
| 224 | 208 | 229 | 205 | 61.98 | 66.61 | 53.64 | 85.31 | -5.16 | 1.4 | 49.658 | 52.580 | 39.280 | 78.002 | 23.169 | 5.898 |
| 225 | 167 | 0 | 104 | 23.34 | 12.91 | 16.71 | 42.63 | 58.91 | -16.38 | 18.135 | 11.283 | 8.888 | 40.132 | 29.271 | 1.620 |
| 226 | 180 | 80 | 134 | 35.41 | 28.61 | 30.18 | 60.43 | 28.59 | -11.26 | 30.707 | 25.060 | 20.307 | 57.370 | 26.499 | 1.158 |
| 227 | 193 | 147 | 173 | 48.53 | 46.65 | 44.36 | 73.96 | 9.96 | -7.53 | 39.323 | 36.063 | 30.422 | 66.963 | 25.789 | -0.383 |
| 228 | 200 | 188 | 200 | 56.5 | 57.74 | 52.76 | 80.59 | 2.04 | -5.77 | 46.027 | 45.103 | 39.170 | 73.427 | 26.119 | -1.847 |
| 229 | 203 | 210 | 213 | 60.49 | 63.3 | 56.71 | 83.6 | -1.29 | -4.79 | 47.763 | 48.130 | 41.653 | 75.317 | 25.792 | -1.823 |
| 230 | 207 | 229 | 227 | 63.43 | 67.49 | 59.75 | 85.75 | -3.73 | -4.18 | 51.318 | 53.677 | 46.480 | 78.485 | 26.175 | -2.282 |
| 231 | 167 | 0 | 112 | 23.55 | 13.06 | 17.11 | 42.86 | 58.87 | -16.92 | 17.260 | 10.580 | 8.853 | 39.207 | 28.609 | 0.160 |
| 232 | 180 | 80 | 145 | 36.57 | 29.8 | 32.68 | 61.48 | 27.98 | -13.3 | 30.277 | 24.463 | 21.360 | 56.775 | 26.974 | -1.998 |
| 233 | 194 | 147 | 188 | 50.23 | 48.09 | 48.17 | 74.88 | 10.6 | -10.48 | 39.635 | 35.913 | 33.392 | 66.735 | 27.196 | -5.297 |
| 234 | 201 | 190 | 220 | 58.01 | 58.85 | 56.91 | 81.21 | 3.07 | -9.11 | 43.728 | 41.853 | 41.102 | 71.065 | 27.434 | -8.438 |
| 235 | 204 | 211 | 236 | 61.98 | 64.24 | 61.11 | 84.09 | 0.09 | -8.4 | 48.067 | 47.350 | 48.650 | 74.785 | 28.612 | -11.197 |
| 236 | 206 | 231 | 251 | 65.08 | 68.59 | 64.35 | 86.3 | -2.35 | -7.73 | 53.487 | 53.793 | 56.395 | 78.623 | 30.884 | -13.045 |
| 237 | 132 | 0 | 94 | 19.2 | 11.25 | 15.58 | 39.99 | 50.66 | -18.22 | 17.085 | 11.257 | 9.363 | 40.262 | 26.404 | 0.182 |
| 238 | 142 | 76 | 122 | 29 | 24.8 | 27.25 | 56.88 | 20.87 | -12.59 | 27.742 | 23.740 | 20.052 | 55.977 | 23.410 | -0.717 |
| 239 | 150 | 133 | 155 | 39.42 | 39.81 | 39.11 | 69.33 | 3.28 | -8.82 | 37.125 | 36.020 | 30.530 | 66.880 | 22.527 | -0.703 |
| 240 | 155 | 170 | 180 | 45.5 | 48.79 | 45.93 | 75.32 | -4.35 | -7.09 | 40.015 | 40.097 | 36.405 | 70.062 | 22.754 | -3.890 |
| 241 | 156 | 188 | 191 | 48.99 | 53.57 | 49.76 | 78.21 | -7.1 | -6.56 | 40.660 | 42.347 | 38.320 | 71.510 | 21.510 | -4.017 |
| 242 | 159 | 206 | 204 | 51.17 | 56.91 | 51.59 | 80.13 | -9.55 | -5.29 | 39.723 | 42.623 | 38.727 | 71.600 | 19.913 | -4.403 |
| 243 | 132 | 0 | 102 | 19.27 | 11.04 | 16.66 | 39.65 | 52.49 | -21.4 | 16.967 | 11.163 | 9.335 | 40.043 | 26.506 | -0.120 |
| 244 | 142 | 74 | 134 | 29.59 | 24.93 | 29.75 | 57.01 | 22.55 | -16.48 | 28.340 | 23.820 | 22.602 | 56.102 | 24.945 | -5.577 |
| 245 | 151 | 134 | 173 | 39.78 | 39.65 | 42.68 | 69.22 | 4.9 | -13.63 | 34.945 | 33.023 | 32.483 | 64.647 | 23.468 | -7.543 |
| 246 | 155 | 171 | 201 | 46.8 | 49.49 | 51.1 | 75.76 | -2.58 | -12.29 | 35.518 | 35.080 | 36.062 | 66.272 | 22.015 | -9.947 |
| 247 | 156 | 190 | 212 | 50.21 | 54.24 | 54.65 | 78.6 | -5.5 | -11.24 | 36.612 | 36.683 | 38.067 | 67.590 | 21.962 | -10.430 |
| 248 | 159 | 208 | 227 | 52.54 | 57.6 | 57.38 | 80.51 | -7.61 | -10.8 | 39.118 | 40.490 | 42.295 | 70.105 | 22.339 | -11.612 |
| 249 | 134 | 0 | 112 | 19.47 | 11.31 | 17.17 | 40.09 | 51.56 | -21.81 | 16.462 | 10.750 | 9.477 | 39.383 | 26.402 | -1.725 |
| 250 | 144 | 73 | 145 | 30.32 | 25.63 | 31.74 | 57.68 | 22.41 | -18.43 | 27.675 | 23.023 | 22.837 | 55.323 | 25.120 | -7.372 |
| 251 | 151 | 134 | 189 | 41.88 | 41.59 | 46.62 | 70.59 | 5.43 | -16.06 | 32.025 | 29.497 | 31.742 | 61.610 | 23.551 | -11.650 |
| 252 | 157 | 172 | 218 | 47.94 | 50.27 | 54.54 | 76.24 | -1.45 | -15.21 | 34.657 | 33.857 | 37.408 | 65.087 | 23.160 | -13.848 |
| 253 | 158 | 191 | 233 | 51.02 | 54.61 | 58.35 | 78.82 | -4.28 | -14.72 | 36.518 | 35.957 | 42.003 | 66.922 | 23.853 | -16.737 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 254 | 157 | 208 | 249 | 53.39 | 58.08 | 61.23 | 80.78 | -6.59 | -14.22 | 40.503 | 40.197 | 49.592 | 69.867 | 26.557 | -20.752 |
| 255 | 84 | 0 | 94 | 12.03 | 7.54 | 14.95 | 33.01 | 38.62 | -28.69 | 14.822 | 10.747 | 9.945 | 39.618 | 21.320 | -2.898 |
| 256 | 87 | 66 | 121 | 18.89 | 17.98 | 25.94 | 49.47 | 8.17 | -23.13 | 22.950 | 20.377 | 21.123 | 52.658 | 19.725 | -8.627 |
| 257 | 89 | 114 | 156 | 26.31 | 29.4 | 37.41 | 61.13 | -8.16 | -20.67 | 24.408 | 23.943 | 26.077 | 56.237 | 17.285 | -11.690 |
| 258 | 87 | 145 | 176 | 30.18 | 35.51 | 43.43 | 66.15 | -14.6 | -19.86 | 25.973 | 26.770 | 30.692 | 59.280 | 15.947 | -14.047 |
| 259 | 84 | 160 | 189 | 32.54 | 38.87 | 46.52 | 68.66 | -16.8 | -19.27 | 26.300 | 27.673 | 32.268 | 60.247 | 15.177 | -14.800 |
| 260 | 85 | 175 | 199 | 33.9 | 40.99 | 48.25 | 70.17 | -18.54 | -18.69 | 26.617 | 28.390 | 33.730 | 60.695 | 15.367 | -16.212 |
| 261 | 85 | 0 | 100 | 12.59 | 7.79 | 16.3 | 33.54 | 40.15 | -31.08 | 14.725 | 10.687 | 9.965 | 39.335 | 21.572 | -3.465 |
| 262 | 88 | 66 | 133 | 19.73 | 18.29 | 28.45 | 49.84 | 10.84 | -26.74 | 21.763 | 19.063 | 21.635 | 51.190 | 19.910 | -12.170 |
| 263 | 88 | 114 | 169 | 27.19 | 29.6 | 40.35 | 61.31 | -5.33 | -24.3 | 23.338 | 22.087 | 27.365 | 54.730 | 18.073 | -16.497 |
| 264 | 88 | 164 | 194 | 31.83 | 36.62 | 48.07 | 66.99 | -12.15 | -23.96 | 23.832 | 23.527 | 30.712 | 56.180 | 17.230 | -19.428 |
| 265 | 86 | 162 | 209 | 33.92 | 39.72 | 51.09 | 69.27 | -14.57 | -23.46 | 23.752 | 23.780 | 31.953 | 56.562 | 16.514 | -20.685 |
| 266 | 88 | 176 | 220 | 35.24 | 41.75 | 53.06 | 70.7 | -16.22 | -23.16 | 25.213 | 26.163 | 35.125 | 58.638 | 16.498 | -21.773 |
| 267 | 85 | 0 | 108 | 12.58 | 7.79 | 16.44 | 33.54 | 40.05 | -31.42 | 14.312 | 10.230 | 10.223 | 38.600 | 21.900 | -5.572 |
| 268 | 88 | 65 | 144 | 20.56 | 19.16 | 30.16 | 50.87 | 10.49 | -27.72 | 20.220 | 17.510 | 21.163 | 49.228 | 19.949 | -14.612 |
| 269 | 89 | 115 | 185 | 28.27 | 30.6 | 43.36 | 62.17 | -4.77 | -26.64 | 22.168 | 20.577 | 27.712 | 52.817 | 19.027 | -20.380 |
| 270 | 88 | 147 | 213 | 32.53 | 37.02 | 50.73 | 67.29 | -10.96 | -26.47 | 21.747 | 20.950 | 29.840 | 53.287 | 17.665 | -23.040 |
| 271 | 88 | 162 | 227 | 34.08 | 39.5 | 53.56 | 69.11 | -13.33 | -26.45 | 23.173 | 22.703 | 33.735 | 55.343 | 18.013 | -25.437 |
| 272 | 83 | 178 | 240 | 35.98 | 42.15 | 56.11 | 70.97 | -14.91 | -25.93 | 25.050 | 25.370 | 38.242 | 57.670 | 18.608 | -27.768 |
| 273 | 44 | 15 | 95 | 6.08 | 4.54 | 14.45 | 25.38 | 20.66 | -40.56 | 9.140 | 8.197 | 9.903 | 34.795 | 10.911 | -11.075 |
| 274 | 38 | 60 | 122 | 10.42 | 12.07 | 24.89 | 41.33 | -8.92 | -35.3 | 10.553 | 10.693 | 17.052 | 39.418 | 9.044 | -22.698 |
| 275 | 22 | 100 | 153 | 14.73 | 19.63 | 35.26 | 51.42 | -23.28 | -34.41 | 8.978 | 10.083 | 19.152 | 38.175 | 5.639 | -29.510 |
| 276 | 0 | 127 | 175 | 16.85 | 23.41 | 40.63 | 55.49 | -28.58 | -34.69 | 9.500 | 10.633 | 21.575 | 39.470 | 5.982 | -32.265 |
| 277 | 0 | 142 | 185 | 18.32 | 25.63 | 43.43 | 57.68 | -30.16 | -34.46 | 9.455 | 10.717 | 22.252 | 39.583 | 5.743 | -33.383 |
| 278 | 0 | 155 | 197 | 18.9 | 26.61 | 44.77 | 58.62 | -31.17 | -34.49 | 9.465 | 10.873 | 22.960 | 39.657 | 5.871 | -34.618 |
| 279 | 44 | 13 | 102 | 6.66 | 4.81 | 15.86 | 26.18 | 23.37 | -42.72 | 9.297 | 8.217 | 10.292 | 34.632 | 11.990 | -12.638 |
| 280 | 38 | 59 | 132 | 11.06 | 12.18 | 26.84 | 41.5 | -4.95 | -38.42 | 10.100 | 10.237 | 17.413 | 38.530 | 9.147 | -25.065 |
| 281 | 23 | 101 | 168 | 15.44 | 19.77 | 37.84 | 51.58 | -19.75 | -37.74 | 8.747 | 9.593 | 19.875 | 37.323 | 6.699 | -32.510 |
| 282 | 0 | 128 | 193 | 18.06 | 24.24 | 44.6 | 56.33 | -25.67 | -38.23 | 8.842 | 9.693 | 21.718 | 37.637 | 6.923 | -35.707 |
| 283 | 0 | 143 | 206 | 19.01 | 25.88 | 47.13 | 57.93 | -27.65 | -38.5 | 8.643 | 9.663 | 22.310 | 37.442 | 6.469 | -37.192 |
| 284 | 0 | 156 | 218 | 19.92 | 27.2 | 48.7 | 59.16 | -28.38 | -38.19 | 8.537 | 9.720 | 22.577 | 37.313 | 6.406 | -37.930 |
| 285 | 44 | 9 | 108 | 6.77 | 4.9 | 15.85 | 26.45 | 23.36 | -42.22 | 8.957 | 7.723 | 10.222 | 33.673 | 12.580 | -14.053 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 286 | 40 | 58 | 143 | 11.87 | 13.1 | 28.43 | 42.91 | -5.25 | -38.65 | 10.095 | 9.927 | 17.805 | 37.878 | 10.473 | -27.065 |
| 287 | 23 | 100 | 182 | 16.64 | 21.01 | 40.53 | 52.96 | -18.86 | -38.93 | 8.563 | 9.150 | 20.233 | 36.407 | 7.799 | -34.825 |
| 288 | 0 | 128 | 209 | 18.87 | 24.83 | 46.75 | 56.91 | -23.97 | -39.8 | 8.392 | 9.130 | 21.648 | 36.343 | 7.334 | -37.800 |
| 289 | 0 | 143 | 223 | 19.78 | 26.37 | 49.23 | 58.39 | -25.76 | -40.13 | 8.343 | 9.073 | 22.202 | 36.238 | 7.511 | -39.062 |
| 290 | 0 | 158 | 237 | 20.59 | 27.63 | 50.9 | 59.55 | -26.81 | -40.01 | 8.700 | 9.540 | 23.928 | 37.003 | 8.054 | -40.998 |
| 291 | 197 | 0 | 42 | 24.25 | 13.95 | 3.02 | 44.16 | 56.33 | 37.31 | 17.880 | 10.913 | 3.217 | 39.453 | 28.692 | 27.793 |
| 292 | 211 | 91 | 0 | 33.89 | 28.34 | 4.83 | 60.19 | 24.45 | 53.69 | 25.578 | 21.490 | 2.697 | 53.732 | 19.427 | 56.287 |
| 293 | 227 | 161 | 0 | 45.41 | 45.84 | 6.6 | 73.44 | 3.5 | 68.01 | 32.720 | 31.047 | 3.295 | 62.842 | 16.450 | 67.578 |
| 294 | 238 | 203 | 0 | 52.05 | 56.13 | 7.62 | 79.69 | -5.32 | 74.58 | 39.257 | 39.483 | 3.667 | 69.345 | 15.648 | 76.312 |
| 295 | 241 | 223 | 0 | 55.48 | 61.4 | 8.06 | 82.59 | -9.11 | 77.86 | 42.348 | 44.803 | 3.978 | 73.082 | 13.817 | 80.798 |
| 296 | 245 | 242 | 0 | 58.27 | 65.7 | 8.51 | 84.84 | -11.92 | 80.05 | 45.392 | 49.777 | 4.260 | 76.187 | 12.945 | 84.477 |
| 297 | 198 | 0 | 62 | 25.26 | 14.37 | 7.22 | 44.75 | 58.06 | 15.96 | 18.477 | 11.040 | 6.485 | 39.690 | 30.557 | 10.348 |
| 298 | 214 | 88 | 53 | 36 | 29.5 | 12 | 61.22 | 27.19 | 27.97 | 28.112 | 22.717 | 9.255 | 55.047 | 23.593 | 26.043 |
| 291 | 230 | 158 | 58 | 47.77 | 46.86 | 16.75 | 74.1 | 7.28 | 37.78 | 37.082 | 33.830 | 11.410 | 65.297 | 21.223 | 36.748 |
| 292 | 241 | 202 | 60 | 55.84 | 58.8 | 19.92 | 81.18 | -2.1 | 43 | 45.330 | 44.207 | 12.967 | 72.615 | 21.147 | 44.848 |
| 293 | 245 | 225 | 61 | 59.77 | 64.64 | 21.23 | 84.3 | -5.99 | 45.72 | 49.725 | 51.833 | 14.087 | 77.310 | 19.093 | 49.930 |
| 294 | 251 | 245 | 66 | 62.69 | 69.06 | 22.37 | 86.53 | -8.78 | 47.33 | 56.592 | 62.193 | 15.958 | 83.120 | 18.496 | 55.242 |
| 295 | 199 | 0 | 85 | 26.29 | 14.47 | 12.38 | 44.9 | 61.7 | -1.28 | 18.473 | 10.843 | 6.778 | 39.508 | 30.969 | 8.773 |
| 296 | 245 | 242 | 0 | 58.27 | 65.7 | 8.51 | 84.84 | -11.92 | 80.05 | 45.392 | 49.777 | 4.260 | 76.187 | 12.945 | 84.477 |
| 297 | 198 | 0 | 62 | 25.26 | 14.37 | 7.22 | 44.75 | 58.06 | 15.96 | 18.477 | 11.040 | 6.485 | 39.690 | 30.557 | 10.348 |
| 298 | 214 | 88 | 53 | 36 | 29.5 | 12 | 61.22 | 27.19 | 27.97 | 28.112 | 22.717 | 9.255 | 55.047 | 23.593 | 26.043 |
| 299 | 230 | 158 | 58 | 47.77 | 46.86 | 16.75 | 74.1 | 7.28 | 37.78 | 37.082 | 33.830 | 11.410 | 65.297 | 21.223 | 36.748 |
| 300 | 241 | 202 | 60 | 55.84 | 58.8 | 19.92 | 81.18 | -2.1 | 43 | 45.330 | 44.207 | 12.967 | 72.615 | 21.147 | 44.848 |
| 301 | 245 | 225 | 61 | 59.77 | 64.64 | 21.23 | 84.3 | -5.99 | 45.72 | 49.725 | 51.833 | 14.087 | 77.310 | 19.093 | 49.930 |
| 302 | 251 | 245 | 66 | 62.69 | 69.06 | 22.37 | 86.53 | -8.78 | 47.33 | 56.592 | 62.193 | 15.958 | 83.120 | 18.496 | 55.242 |
| 303 | 199 | 0 | 85 | 26.29 | 14.47 | 12.38 | 44.9 | 61.7 | -1.28 | 18.473 | 10.843 | 6.778 | 39.508 | 30.969 | 8.773 |
| 304 | 217 | 87 | 94 | 39.62 | 32.2 | 22.81 | 63.5 | 29.02 | 6.78 | 28.883 | 23.243 | 12.257 | 55.507 | 24.875 | 17.375 |
| 305 | 234 | 159 | 120 | 53.28 | 51.23 | 32.36 | 76.82 | 10.23 | 13.62 | 39.807 | 36.143 | 17.132 | 66.880 | 23.820 | 24.478 |
| 306 | 243 | 206 | 136 | 61.25 | 62.56 | 37.79 | 83.21 | 2.19 | 16.87 | 49.638 | 48.617 | 21.852 | 75.223 | 24.302 | 28.848 |
| 307 | 250 | 227 | 147 | 65.47 | 68.54 | 40.58 | 86.28 | -1.38 | 18.46 | 55.378 | 56.673 | 25.885 | 80.103 | 24.253 | 29.805 |
| 308 | 255 | 250 | 155 | 68.63 | 73.26 | 42.36 | 88.57 | -4.31 | 20.14 | 63.260 | 69.720 | 28.967 | 86.792 | 23.008 | 36.148 |
| 309 | 179 | 0 | 37 | 22.67 | 13.31 | 3.06 | 43.22 | 53.36 | 35.37 | 17.062 | 10.770 | 3.602 | 39.285 | 26.912 | 24.910 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 310 | 193 | 87 | 0 | 31.66 | 27 | 4.82 | 58.97 | 21.78 | 51.65 | 25.568 | 21.863 | 2.742 | 54.058 | 18.805 | 56.505 |
| 311 | 206 | 154 | 0 | 41.77 | 42.85 | 6.5 | 71.45 | 1.37 | 65.04 | 30.585 | 30.110 | 3.263 | 62.078 | 13.913 | 66.477 |
| 312 | 214 | 193 | 0 | 47.9 | 52.71 | 7.61 | 77.7 | -7.9 | 71.18 | 33.505 | 35.190 | 3.602 | 66.230 | 11.739 | 71.357 |
| 313 | 218 | 212 | 0 | 51.03 | 57.66 | 8.04 | 80.55 | -11.73 | 74.43 | 37.025 | 40.357 | 3.885 | 70.087 | 10.659 | 76.222 |
| 314 | 223 | 231 | 0 | 53.76 | 61.78 | 8.56 | 82.8 | -14.33 | 76.34 | 39.172 | 44.490 | 4.123 | 72.903 | 9.323 | 79.608 |
| 315 | 181 | 0 | 60 | 23.17 | 13.21 | 7.13 | 43.08 | 56.2 | 13.41 | 18.275 | 11.253 | 6.680 | 40.053 | 29.358 | 10.133 |
| 316 | 196 | 85 | 55 | 33.15 | 27.61 | 11.75 | 59.53 | 24.69 | 25.76 | 27.573 | 23.143 | 9.650 | 55.458 | 21.826 | 25.393 |
| 317 | 210 | 152 | 61 | 43.51 | 43.53 | 16.48 | 71.91 | 4.57 | 34.65 | 32.722 | 30.767 | 11.433 | 62.825 | 18.198 | 32.405 |
| 318 | 219 | 193 | 65 | 51.35 | 55.14 | 19.7 | 79.12 | -4.73 | 39.91 | 39.312 | 40.110 | 13.522 | 70.075 | 16.515 | 38.952 |
| 319 | 224 | 214 | 68 | 54.74 | 60.29 | 21.04 | 82 | -8.38 | 42.13 | 43.250 | 46.190 | 14.747 | 73.990 | 15.896 | 42.488 |
| 320 | 226 | 233 | 71 | 57.39 | 64.35 | 22.23 | 84.15 | -11.08 | 43.48 | 47.387 | 52.710 | 15.437 | 77.907 | 15.235 | 47.518 |
| 321 | 182 | 0 | 83 | 24.43 | 13.79 | 12.6 | 43.92 | 58.08 | -3.6 | 17.983 | 10.950 | 7.238 | 39.523 | 29.735 | 6.877 |
| 322 | 197 | 85 | 97 | 36.4 | 29.95 | 22.36 | 61.61 | 26.83 | 4.38 | 27.952 | 23.073 | 12.508 | 55.173 | 23.644 | 16.080 |
| 323 | 213 | 153 | 121 | 49.23 | 48.05 | 31.89 | 74.85 | 8.01 | 10.95 | 35.233 | 32.873 | 16.965 | 64.292 | 20.999 | 20.412 |
| 324 | 221 | 195 | 138 | 56.96 | 59.15 | 37.31 | 81.37 | -0.16 | 14.35 | 43.273 | 43.353 | 22.743 | 72.083 | 20.917 | 21.707 |
| 325 | 226 | 217 | 147 | 60.83 | 64.62 | 39.91 | 84.29 | -3.46 | 15.91 | 48.685 | 50.747 | 25.588 | 76.937 | 20.715 | 24.865 |
| 326 | 231 | 237 | 154 | 64 | 69.2 | 42.12 | 86.6 | -6.11 | 17.05 | 54.380 | 59.623 | 28.225 | 81.877 | 20.328 | 28.877 |
| 327 | 161 | 0 | 33 | 20.26 | 11.99 | 2.99 | 41.21 | 50.66 | 32.48 | 16.512 | 10.753 | 3.812 | 39.273 | 25.362 | 23.545 |
| 328 | 172 | 83 | 8 | 28.63 | 25.04 | 4.84 | 57.11 | 18.44 | 48.35 | 24.498 | 21.293 | 2.735 | 53.632 | 17.260 | 55.823 |
| 329 | 182 | 146 | 0 | 37.69 | 39.68 | 6.44 | 69.24 | -1.84 | 61.48 | 30.520 | 30.740 | 3.405 | 62.710 | 12.675 | 66.607 |
| 330 | 188 | 183 | 0 | 43.1 | 48.64 | 7.45 | 75.23 | -10.92 | 67.54 | 33.512 | 35.780 | 3.730 | 66.802 | 10.778 | 71.528 |
| 331 | 193 | 201 | 0 | 45.96 | 53.21 | 7.97 | 78 | -14.58 | 70.28 | 34.563 | 38.400 | 3.877 | 68.810 | 8.826 | 74.050 |
| 332 | 198 | 219 | 0 | 48.51 | 57.07 | 8.47 | 80.22 | -17.07 | 72.24 | 33.182 | 38.120 | 3.923 | 68.503 | 7.036 | 73.233 |
| 333 | 164 | 0 | 57 | 20.83 | 12.03 | 6.93 | 41.26 | 53.22 | 11.12 | 17.277 | 10.930 | 6.850 | 39.550 | 27.762 | 8.522 |
| 334 | 175 | 83 | 58 | 29.96 | 25.49 | 11.58 | 57.55 | 21.64 | 22.87 | 27.282 | 23.393 | 10.308 | 55.627 | 21.031 | 23.515 |
| 335 | 187 | 145 | 65 | 39.59 | 40.53 | 16.07 | 69.84 | 1.61 | 32.06 | 34.307 | 33.300 | 13.240 | 65.030 | 17.344 | 31.052 |
| 336 | 195 | 184 | 70 | 46.68 | 51.16 | 19.44 | 76.78 | -7.29 | 36.44 | 37.415 | 38.817 | 14.520 | 69.172 | 15.334 | 34.770 |
| 337 | 198 | 203 | 75 | 49.83 | 55.98 | 20.76 | 79.6 | -10.81 | 38.57 | 39.928 | 43.510 | 15.345 | 72.423 | 13.663 | 38.298 |
| 338 | 200 | 222 | 76 | 51.94 | 59.42 | 21.51 | 81.52 | -13.52 | 40.37 | 40.362 | 45.660 | 15.700 | 73.540 | 12.412 | 39.352 |
| 339 | 164 | 0 | 81 | 22.38 | 12.77 | 12.45 | 42.42 | 55.47 | -5.77 | 17.213 | 10.773 | 7.558 | 39.228 | 28.252 | 5.083 |
| 340 | 178 | 81 | 97 | 33.45 | 28 | 22.03 | 59.89 | 24.23 | 2.04 | 27.732 | 23.487 | 13.220 | 55.645 | 22.435 | 14.907 |
| 341 | 190 | 146 | 120 | 45.4 | 45.09 | 31.52 | 72.95 | 5.57 | 8.23 | 35.373 | 33.837 | 19.102 | 65.080 | 20.240 | 16.998 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 342 | 199 | 186 | 133 | 52.16 | 55 | 36.59 | 79.04 | -2.25 | 11.33 | 40.828 | 41.647 | 24.615 | 70.905 | 19.604 | 16.202 |
| 343 | 202 | 207 | 149 | 55.56 | 59.96 | 39.41 | 81.81 | -5.53 | 12.3 | 43.387 | 46.093 | 26.078 | 73.903 | 18.604 | 18.775 |
| 344 | 205 | 225 | 155 | 58.29 | 64 | 41.23 | 83.97 | -8.11 | 13.63 | 45.893 | 50.583 | 28.243 | 76.630 | 18.033 | 19.793 |
| 345 | 128 | 13 | 31 | 15.93 | 9.92 | 2.91 | 37.7 | 42.88 | 27.02 | 15.257 | 10.383 | 4.438 | 38.835 | 22.781 | 19.048 |
| 346 | 134 | 79 | 24 | 22.78 | 21.26 | 4.73 | 53.24 | 10.67 | 42.23 | 21.103 | 19.723 | 2.770 | 51.728 | 13.108 | 52.263 |
| 347 | 140 | 131 | 0 | 30.06 | 33.82 | 6.28 | 64.82 | -9.34 | 54.58 | 26.420 | 28.160 | 3.308 | 60.547 | 8.508 | 63.522 |
| 348 | 144 | 165 | 0 | 34.48 | 41.42 | 7.42 | 70.47 | -17.81 | 59.46 | 26.985 | 30.683 | 3.597 | 62.717 | 5.828 | 65.332 |
| 349 | 146 | 182 | 0 | 36.63 | 45.1 | 7.88 | 72.96 | -21.31 | 61.96 | 27.847 | 32.697 | 3.728 | 64.317 | 4.503 | 67.232 |
| 350 | 149 | 199 | 0 | 38.11 | 47.67 | 8.29 | 74.62 | -23.64 | 63.26 | 27.085 | 32.593 | 3.765 | 64.377 | 3.057 | 67.110 |
| 351 | 130 | 0 | 54 | 16.96 | 10.41 | 7.04 | 38.56 | 45 | 6.01 | 16.012 | 10.760 | 7.113 | 39.228 | 24.789 | 6.875 |
| 352 | 138 | 78 | 62 | 23.98 | 21.6 | 11.32 | 53.6 | 14.46 | 16.84 | 24.808 | 21.890 | 11.690 | 54.233 | 18.852 | 16.817 |
| 353 | 144 | 132 | 72 | 31.99 | 34.63 | 15.82 | 65.46 | -4.98 | 25.11 | 31.192 | 31.793 | 14.595 | 63.807 | 14.261 | 25.322 |
| 354 | 149 | 167 | 78 | 37.45 | 43.27 | 18.98 | 71.74 | -13.37 | 28.73 | 33.940 | 36.697 | 15.813 | 67.738 | 12.295 | 29.063 |
| 355 | 151 | 184 | 79 | 39.93 | 47.2 | 20.08 | 74.31 | -16.6 | 30.84 | 32.543 | 37.003 | 15.708 | 67.795 | 9.700 | 29.425 |
| 356 | 153 | 201 | 84 | 41.78 | 50.16 | 20.81 | 76.17 | -18.9 | 32.52 | 31.720 | 37.873 | 15.777 | 67.933 | 7.909 | 29.507 |
| 357 | 132 | 0 | 80 | 18.07 | 10.63 | 12.1 | 38.95 | 49.27 | -10.73 | 16.148 | 10.703 | 8.210 | 39.152 | 25.431 | 2.423 |
| 358 | 141 | 76 | 98 | 27.23 | 23.81 | 21.49 | 55.89 | 18.14 | -3.78 | 25.153 | 21.883 | 14.662 | 54.115 | 20.531 | 8.453 |
| 359 | 149 | 133 | 123 | 37.04 | 38.44 | 30.48 | 68.35 | -0.08 | 1.91 | 34.215 | 34.133 | 23.685 | 65.078 | 19.238 | 7.868 |
| 360 | 153 | 169 | 140 | 42.58 | 46.87 | 35.51 | 74.11 | -7.64 | 4.35 | 37.083 | 38.700 | 27.153 | 68.928 | 17.815 | 8.343 |
| 361 | 154 | 187 | 149 | 45.22 | 50.82 | 38.21 | 76.57 | -10.53 | 4.86 | 36.853 | 40.057 | 27.775 | 69.817 | 16.137 | 8.828 |
| 362 | 155 | 204 | 156 | 47.37 | 54.04 | 39.9 | 78.48 | -12.74 | 5.91 | 35.680 | 39.990 | 27.813 | 69.843 | 14.131 | 8.807 |
| 363 | 78 | 26 | 35 | 8.93 | 6.43 | 2.83 | 30.48 | 25.87 | 15.13 | 13.627 | 11.067 | 6.358 | 40.163 | 15.691 | 11.710 |
| 364 | 79 | 71 | 33 | 13.27 | 14.91 | 4.48 | 45.51 | -7 | 30.32 | 16.547 | 17.050 | 5.310 | 48.482 | 8.092 | 31.030 |
| 365 | 75 | 113 | 27 | 17.96 | 24.22 | 6.11 | 56.3 | -26.1 | 40.68 | 18.090 | 21.163 | 3.400 | 53.548 | 2.533 | 50.840 |
| 366 | 72 | 141 | 19 | 20.44 | 29.31 | 7.07 | 61.05 | -34 | 44.67 | 17.513 | 22.203 | 3.327 | 54.722 | -1.315 | 53.363 |
| 367 | 69 | 155 | 11 | 21.71 | 31.78 | 7.46 | 63.16 | -37.03 | 46.69 | 17.997 | 23.140 | 3.368 | 55.717 | -1.923 | 54.782 |
| 368 | 65 | 169 | 1 | 23.07 | 33.9 | 7.96 | 64.88 | -38.24 | 47.72 | 17.788 | 23.177 | 3.433 | 55.892 | -2.758 | 54.655 |
| 369 | 81 | 21 | 57 | 10.24 | 7.05 | 7 | 31.91 | 30.27 | -5.3 | 13.343 | 10.010 | 7.512 | 37.977 | 19.275 | 3.097 |
| 370 | 82 | 69 | 67 | 14.88 | 15.6 | 10.96 | 46.44 | -0.94 | 5.58 | 20.085 | 19.067 | 12.210 | 51.268 | 13.597 | 10.193 |
| 371 | 81 | 113 | 78 | 19.86 | 24.88 | 15.03 | 56.96 | -19.19 | 12.41 | 23.418 | 25.183 | 15.083 | 57.763 | 9.731 | 13.668 |
| 372 | 79 | 142 | 85 | 23.79 | 31.49 | 18.39 | 62.92 | -26.54 | 14.8 | 22.655 | 26.280 | 15.787 | 59.042 | 5.739 | 14.140 |
| 373 | 76 | 156 | 89 | 25 | 33.89 | 19.05 | 64.88 | -29.77 | 16.73 | 22.093 | 26.553 | 15.558 | 59.022 | 4.440 | 14.660 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 374 | 74 | 170 | 93 | 26.02 | 35.7 | 19.74 | 66.29 | -31.61 | 17.72 | 22.532 | 27.973 | 16.548 | 59.957 | 3.906 | 13.918 |
| 375 | 82 | 13 | 77 | 11.29 | 7.2 | 11.81 | 32.26 | 36.56 | -21.42 | 13.277 | 9.667 | 8.112 | 37.568 | 20.060 | 0.067 |
| 376 | 86 | 68 | 100 | 17.92 | 17.62 | 20.97 | 49.03 | 5.03 | -14.58 | 20.893 | 18.977 | 16.848 | 51.017 | 17.095 | -2.213 |
| 377 | 86 | 114 | 124 | 24.51 | 28.39 | 29.48 | 60.24 | -11.88 | -10.48 | 24.543 | 24.767 | 22.622 | 57.118 | 14.890 | -3.862 |
| 378 | 85 | 144 | 142 | 27.81 | 33.99 | 34.14 | 64.96 | -18.58 | -9.47 | 26.877 | 29.247 | 26.880 | 61.315 | 12.886 | -4.322 |
| 379 | 85 | 159 | 149 | 29.37 | 36.55 | 36.16 | 66.94 | -21.06 | -8.93 | 27.110 | 29.873 | 28.290 | 61.975 | 12.675 | -5.542 |
| 380 | 80 | 174 | 157 | 30.93 | 38.87 | 37.72 | 68.65 | -22.63 | -8.13 | 26.562 | 30.340 | 28.735 | 62.155 | 11.350 | -5.963 |
| 381 | 39 | 29 | 39 | 3.15 | 3.49 | 2.8 | 21.91 | -3.62 | 0.62 | 5.282 | 5.280 | 3.918 | 27.737 | 4.645 | 2.993 |
| 382 | 30 | 63 | 39 | 5.4 | 9.56 | 4.41 | 37.05 | -37.41 | 16.11 | 7.665 | 9.603 | 6.808 | 37.465 | -1.590 | 5.115 |
| 383 | 0 | 98 | 39 | 7.49 | 15.44 | 5.83 | 46.23 | -54.9 | 24.58 | 6.963 | 10.103 | 7.493 | 38.350 | -6.524 | 3.807 |
| 384 | 0 | 121 | 45 | 8.44 | 18.48 | 6.57 | 50.07 | -62.76 | 27.87 | 7.443 | 11.310 | 8.340 | 40.527 | -8.163 | 4.297 |
| 385 | 0 | 134 | 52 | 8.9 | 19.75 | 6.92 | 51.56 | -65.24 | 28.94 | 7.657 | 11.957 | 8.705 | 41.488 | -8.757 | 4.613 |
| 386 | 0 | 145 | 57 | 9.66 | 21.06 | 7.31 | 53.01 | -65.25 | 29.82 | 7.470 | 11.977 | 8.745 | 41.577 | -9.821 | 4.612 |
| 387 | 40 | 25 | 58 | 4.18 | 3.78 | 6.6 | 22.92 | 7.91 | -19.06 | 8.355 | 7.950 | 7.385 | 34.163 | 7.987 | -2.968 |
| 388 | 35 | 62 | 69 | 6.95 | 10.04 | 10.78 | 37.92 | -24.29 | -8.53 | 9.152 | 10.300 | 11.065 | 38.830 | 3.246 | -7.835 |
| 389 | 15 | 100 | 82 | 9.7 | 16.38 | 15 | 47.47 | -41.08 | -3.88 | 8.515 | 10.867 | 12.983 | 39.870 | -1.121 | -11.648 |
| 390 | 0 | 124 | 93 | 11.47 | 20.33 | 17.81 | 52.21 | -48.1 | -2.38 | 8.987 | 11.790 | 14.997 | 41.535 | -1.853 | -14.072 |
| 391 | 0 | 136 | 99 | 12.16 | 21.83 | 18.6 | 53.85 | -50.32 | -1.31 | 9.160 | 12.560 | 15.733 | 42.460 | -2.663 | -14.323 |
| 392 | 0 | 147 | 104 | 12.49 | 22.65 | 19.17 | 54.71 | -51.78 | -1.06 | 9.650 | 13.580 | 17.128 | 43.772 | -2.971 | -15.342 |
| 393 | 42 | 20 | 79 | 5.35 | 4.15 | 11.18 | 24.17 | 17.54 | -33.47 | 8.445 | 7.930 | 8.460 | 33.988 | 9.140 | -7.405 |
| 394 | 37 | 61 | 101 | 9.6 | 11.86 | 20.54 | 40.99 | -13.89 | -27.56 | 9.573 | 10.067 | 14.208 | 38.282 | 6.595 | -17.668 |
| 395 | 21 | 100 | 124 | 13.33 | 19.02 | 28.61 | 50.71 | -29.01 | -25.5 | 8.742 | 10.337 | 17.358 | 38.592 | 3.084 | -24.817 |
| 396 | 0 | 125 | 141 | 15.34 | 22.69 | 32.91 | 54.75 | -34.02 | -25.25 | 9.255 | 11.310 | 19.255 | 40.188 | 2.788 | -26.267 |
| 397 | 0 | 139 | 150 | 15.95 | 23.95 | 34.73 | 56.04 | -36.03 | -25.7 | 9.413 | 11.560 | 19.915 | 40.738 | 2.504 | -26.705 |
| 398 | 0 | 152 | 158 | 16.64 | 25.09 | 35.63 | 57.17 | -36.97 | -25.04 | 9.787 | 12.237 | 21.297 | 41.788 | 2.311 | -27.715 |
| 399 | 161 | 0 | 81 | 25 | 13.62 | 14.52 | 43.68 | 61.62 | -9.19 | 17.772 | 11.230 | 7.928 | 40.133 | 28.042 | 5.175 |
| 400 | 175 | 69 | 96 | 35.51 | 28.16 | 24.67 | 60.04 | 30.65 | -2.65 | 27.967 | 23.070 | 13.900 | 55.353 | 23.645 | 12.567 |
| 401 | 189 | 130 | 127 | 47.2 | 44.61 | 35.39 | 72.63 | 12.03 | 1.98 | 34.830 | 31.527 | 20.752 | 63.295 | 22.980 | 10.467 |
| 402 | 197 | 167 | 146 | 53.77 | 54.17 | 40.95 | 78.56 | 3.98 | 4.67 | 40.762 | 39.970 | 26.123 | 69.797 | 22.041 | 11.607 |
| 403 | 202 | 185 | 156 | 56.89 | 58.75 | 43.66 | 81.15 | 0.61 | 5.72 | 42.530 | 42.853 | 28.082 | 71.685 | 21.788 | 11.540 |
| 404 | 206 | 204 | 166 | 58.87 | 61.84 | 45.07 | 82.83 | -1.81 | 6.89 | 44.685 | 45.617 | 29.890 | 73.815 | 21.695 | 12.273 |
| 405 | 162 | 0 | 87 | 24.61 | 13.41 | 15.16 | 43.37 | 61.27 | -11.34 | 18.023 | 11.360 | 8.338 | 40.303 | 28.702 | 3.913 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 406 | 176 | 69 | 107 | 34.76 | 27.18 | 26.14 | 59.14 | 31.99 | -6.81 | 28.658 | 23.177 | 14.738 | 55.592 | 24.763 | 10.792 |
| 407 | 188 | 129 | 140 | 45.97 | 42.84 | 37.45 | 71.45 | 13.69 | -2.94 | 35.732 | 31.687 | 23.285 | 63.700 | 24.329 | 6.223 |
| 408 | 197 | 167 | 163 | 53.3 | 53.09 | 44.54 | 77.93 | 5.5 | -0.91 | 41.087 | 39.437 | 28.890 | 69.653 | 23.346 | 6.708 |
| 409 | 202 | 187 | 177 | 56.92 | 58.15 | 47.76 | 80.82 | 2.1 | 0.25 | 43.090 | 43.060 | 31.038 | 71.775 | 23.039 | 6.958 |
| 410 | 205 | 203 | 186 | 59.73 | 62.08 | 50.4 | 82.96 | -0.31 | 0.9 | 46.952 | 48.930 | 34.363 | 75.462 | 22.880 | 8.337 |
| 411 | 162 | 0 | 93 | 24.46 | 13.34 | 15.51 | 43.28 | 61.01 | -12.39 | 17.597 | 11.157 | 8.252 | 39.737 | 28.465 | 3.273 |
| 412 | 175 | 70 | 119 | 35.65 | 28.18 | 28.31 | 60.05 | 31.05 | -8.89 | 28.772 | 23.480 | 16.493 | 55.388 | 25.547 | 6.158 |
| 413 | 189 | 131 | 155 | 47.76 | 44.51 | 41.05 | 72.57 | 13.85 | -5.79 | 36.630 | 33.247 | 26.623 | 64.325 | 25.012 | 1.330 |
| 414 | 198 | 169 | 179 | 54.85 | 54.34 | 48.3 | 78.66 | 6.28 | -4.12 | 42.030 | 40.857 | 31.870 | 70.057 | 24.404 | 2.708 |
| 415 | 202 | 188 | 193 | 57.94 | 58.74 | 51.44 | 81.15 | 3.19 | -3.37 | 44.432 | 43.657 | 34.812 | 72.135 | 25.131 | 1.948 |
| 416 | 205 | 205 | 205 | 60.31 | 62.24 | 53.82 | 83.04 | 0.7 | -2.7 | 48.988 | 49.793 | 40.942 | 76.063 | 26.039 | 0.382 |
| 417 | 147 | 0 | 78 | 23.4 | 12.96 | 14.51 | 42.7 | 58.88 | -10.85 | 17.133 | 11.017 | 7.957 | 39.825 | 26.965 | 4.530 |
| 418 | 159 | 67 | 98 | 33.18 | 26.51 | 24.42 | 58.51 | 29.19 | -4.82 | 27.097 | 22.553 | 14.192 | 55.007 | 22.602 | 11.195 |
| 419 | 173 | 124 | 126 | 44.33 | 42.37 | 35.09 | 71.13 | 10.35 | -0.2 | 34.912 | 32.290 | 22.350 | 63.860 | 22.380 | 8.280 |
| 420 | 180 | 160 | 145 | 50.43 | 51.44 | 40.73 | 76.95 | 2.21 | 2.17 | 41.353 | 40.720 | 27.665 | 70.340 | 22.328 | 9.920 |
| 421 | 183 | 177 | 154 | 53.55 | 55.95 | 43.8 | 79.58 | -1 | 2.85 | 43.745 | 44.353 | 30.517 | 72.753 | 22.175 | 9.450 |
| 422 | 188 | 195 | 167 | 55.64 | 59.14 | 45.36 | 81.37 | -3.42 | 4.02 | 44.542 | 46.450 | 31.410 | 74.198 | 21.003 | 10.552 |
| 423 | 147 | 0 | 85 | 22.91 | 12.63 | 15.27 | 42.19 | 58.84 | -13.64 | 17.447 | 11.160 | 8.403 | 40.005 | 27.662 | 3.153 |
| 424 | 160 | 67 | 108 | 32.31 | 25.66 | 26.04 | 57.71 | 29.54 | -9.09 | 28.435 | 23.520 | 16.238 | 55.817 | 24.198 | 7.477 |
| 425 | 171 | 125 | 140 | 42.57 | 40.21 | 36.96 | 69.62 | 11.67 | -5.42 | 36.097 | 32.693 | 25.293 | 64.545 | 23.875 | 4.010 |
| 426 | 180 | 160 | 162 | 49.51 | 49.99 | 44.1 | 76.06 | 3.57 | -3.59 | 42.332 | 40.480 | 31.432 | 70.513 | 24.215 | 4.173 |
| 427 | 185 | 175 | 173 | 52.76 | 54.67 | 47.31 | 78.85 | 0.12 | -2.64 | 44.873 | 45.240 | 34.055 | 73.310 | 23.506 | 5.068 |
| 428 | 189 | 195 | 185 | 55.62 | 58.6 | 49.92 | 81.07 | -2.19 | -1.8 | 45.407 | 47.533 | 36.387 | 74.417 | 22.778 | 3.672 |
| 429 | 147 | 0 | 91 | 22.81 | 12.75 | 15.81 | 42.38 | 57.61 | -14.66 | 17.183 | 11.083 | 8.500 | 39.700 | 27.535 | 2.295 |
| 430 | 161 | 67 | 117 | 33.08 | 26.54 | 28.16 | 58.54 | 28.72 | -11.25 | 28.263 | 23.303 | 17.715 | 55.270 | 25.143 | 3.127 |
| 431 | 173 | 125 | 152 | 44.42 | 41.99 | 40.73 | 70.87 | 11.74 | -8.3 | 36.297 | 32.913 | 27.767 | 64.218 | 25.001 | -0.808 |
| 432 | 181 | 160 | 177 | 50.95 | 51.08 | 47.71 | 76.73 | 4.53 | -6.76 | 42.570 | 41.273 | 35.217 | 70.313 | 25.521 | -1.772 |
| 433 | 186 | 178 | 191 | 54.31 | 55.71 | 51.01 | 79.45 | 1.51 | -5.83 | 43.623 | 42.883 | 37.760 | 71.637 | 25.361 | -3.037 |
| 434 | 187 | 196 | 203 | 56.39 | 58.87 | 53.23 | 81.22 | -0.92 | -5.2 | 44.180 | 44.703 | 39.305 | 72.685 | 24.778 | -3.303 |
| 435 | 137 | 0 | 78 | 21.25 | 11.83 | 14.4 | 40.94 | 56.58 | -13.6 | 16.063 | 10.513 | 8.065 | 38.965 | 25.688 | 2.637 |
| 436 | 144 | 69 | 98 | 30.45 | 24.8 | 24.3 | 56.88 | 26.37 | -7.44 | 25.402 | 21.360 | 14.398 | 53.742 | 21.458 | 8.483 |
| 437 | 157 | 118 | 126 | 40.38 | 39.23 | 34.52 | 68.92 | 8.05 | -3.18 | 32.960 | 30.600 | 22.335 | 62.553 | 21.335 | 6.060 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 438 | 162 | 152 | 146 | 46.29 | 47.92 | 40.23 | 74.78 | 0.23 | -0.92 | 38.922 | 38.307 | 28.942 | 68.770 | 21.460 | 5.105 |
| 439 | 163 | 168 | 157 | 49.17 | 52.13 | 43.27 | 77.36 | -2.95 | -0.34 | 41.740 | 42.757 | 30.807 | 71.733 | 20.889 | 7.247 |
| 440 | 167 | 184 | 166 | 50.95 | 54.97 | 44.51 | 79.02 | -5.36 | 1.02 | 40.200 | 42.297 | 30.812 | 71.400 | 19.177 | 6.655 |
| 441 | 134 | 0 | 84 | 20.89 | 11.62 | 15.14 | 40.6 | 56.34 | -16.07 | 16.475 | 10.767 | 8.285 | 39.270 | 26.415 | 2.322 |
| 442 | 145 | 64 | 107 | 29.51 | 23.72 | 25.53 | 55.8 | 27.44 | -11.48 | 25.738 | 21.377 | 15.937 | 53.703 | 22.757 | 4.567 |
| 443 | 155 | 119 | 141 | 39.07 | 37.42 | 36.34 | 67.59 | 9.68 | -8.06 | 34.095 | 30.730 | 25.608 | 63.060 | 23.169 | 0.903 |
| 444 | 160 | 153 | 162 | 45.55 | 46.63 | 43.3 | 73.95 | 1.7 | -6.24 | 40.283 | 38.923 | 32.972 | 69.447 | 23.335 | 0.003 |
| 445 | 163 | 169 | 172 | 48.82 | 51.2 | 46.62 | 76.8 | -1.47 | -5.36 | 41.273 | 41.400 | 34.957 | 70.998 | 22.607 | -0.210 |
| 446 | 167 | 184 | 184 | 51.35 | 54.76 | 49.06 | 78.9 | -3.78 | -4.56 | 42.007 | 43.717 | 36.315 | 71.990 | 22.140 | -0.410 |
| 447 | 134 | 0 | 90 | 20.74 | 11.54 | 15.4 | 40.48 | 56.14 | -16.92 | 16.097 | 10.557 | 8.278 | 38.812 | 26.133 | 1.585 |
| 448 | 146 | 64 | 117 | 30.39 | 24.67 | 27.63 | 56.75 | 26.67 | -13.46 | 26.402 | 21.860 | 17.830 | 53.847 | 24.016 | 0.413 |
| 449 | 156 | 119 | 153 | 40.59 | 38.84 | 39.71 | 68.64 | 9.92 | -10.83 | 34.557 | 31.443 | 28.708 | 63.000 | 24.480 | -4.455 |
| 450 | 161 | 153 | 177 | 46.9 | 47.59 | 46.66 | 74.56 | 2.86 | -9.26 | 38.497 | 37.553 | 33.772 | 67.747 | 23.674 | -4.105 |
| 451 | 164 | 170 | 191 | 49.81 | 51.73 | 49.89 | 77.12 | -0.17 | -8.59 | 37.523 | 37.297 | 35.277 | 67.777 | 22.419 | -6.242 |
| 452 | 167 | 187 | 203 | 52.1 | 55.04 | 52.28 | 79.07 | -2.52 | -7.89 | 38.363 | 38.923 | 37.283 | 68.800 | 22.399 | -7.273 |
| 453 | 107 | 0 | 76 | 17.53 | 10.11 | 14.47 | 38.05 | 50.3 | -18.77 | 15.565 | 10.670 | 8.445 | 39.388 | 23.580 | 1.943 |
| 454 | 114 | 61 | 98 | 24.95 | 21.15 | 23.88 | 53.11 | 20.73 | -13.15 | 23.500 | 20.187 | 16.822 | 52.432 | 20.420 | 0.275 |
| 455 | 121 | 107 | 125 | 33.15 | 33.49 | 33.49 | 64.56 | 3.05 | -9.19 | 29.720 | 28.180 | 24.445 | 60.510 | 19.573 | -1.422 |
| 456 | 124 | 137 | 144 | 38.28 | 41.16 | 39.24 | 70.29 | -4.43 | -7.35 | 32.922 | 33.040 | 28.777 | 64.813 | 18.682 | -1.452 |
| 457 | 126 | 152 | 153 | 40.43 | 44.45 | 41.99 | 72.53 | -7.34 | -7.05 | 33.707 | 34.447 | 30.082 | 65.958 | 18.127 | -1.568 |
| 458 | 129 | 167 | 164 | 42.52 | 47.5 | 43.69 | 74.51 | -9.55 | -5.77 | 34.842 | 36.657 | 31.985 | 67.403 | 17.809 | -2.035 |
| 459 | 106 | 0 | 83 | 16.93 | 9.56 | 14.87 | 37.05 | 51.35 | -21.53 | 15.413 | 10.560 | 8.518 | 39.062 | 23.699 | 1.107 |
| 460 | 115 | 59 | 107 | 24.19 | 20.17 | 24.96 | 52.03 | 22.11 | -16.98 | 24.115 | 20.607 | 18.172 | 52.807 | 21.392 | -2.145 |
| 461 | 123 | 108 | 139 | 31.93 | 31.7 | 35.05 | 63.1 | 5 | -13.98 | 29.697 | 27.213 | 25.932 | 59.955 | 20.959 | -5.013 |
| 462 | 125 | 138 | 161 | 37.82 | 40.06 | 42.17 | 69.51 | -2.57 | -12.49 | 32.158 | 31.017 | 30.363 | 63.568 | 19.960 | -6.137 |
| 463 | 126 | 154 | 171 | 40.54 | 43.96 | 45.13 | 72.2 | -5.58 | -11.51 | 32.945 | 33.357 | 31.940 | 65.017 | 18.956 | -6.083 |
| 464 | 120 | 167 | 182 | 42.41 | 46.75 | 47.14 | 74.03 | -7.81 | -10.75 | 34.322 | 35.673 | 33.997 | 66.318 | 19.419 | -6.897 |
| 465 | 108 | 0 | 90 | 16.83 | 9.58 | 14.96 | 37.07 | 50.68 | -21.7 | 15.452 | 10.557 | 8.733 | 38.977 | 24.034 | 0.192 |
| 466 | 116 | 58 | 116 | 24.75 | 20.73 | 26.55 | 52.65 | 21.85 | -18.69 | 24.197 | 20.413 | 19.308 | 52.533 | 22.193 | -5.092 |
| 467 | 123 | 108 | 152 | 33.77 | 33.48 | 38.49 | 64.55 | 5.28 | -16.25 | 28.277 | 26.070 | 25.990 | 58.207 | 21.308 | -8.142 |
| 468 | 126 | 139 | 177 | 39.14 | 41.02 | 45.2 | 70.19 | -1.28 | -15.05 | 31.745 | 30.853 | 31.875 | 62.740 | 20.737 | -9.907 |
| 469 | 127 | 153 | 188 | 41.16 | 44.15 | 47.95 | 72.33 | -4.23 | -14.62 | 32.230 | 32.053 | 33.695 | 63.762 | 20.183 | -10.868 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 470 | 126 | 169 | 199 | 43.38 | 47.28 | 50.35 | 74.37 | -6.39 | -13.84 | 32.078 | 32.873 | 34.265 | 64.148 | 19.596 | -11.038 |
| 471 | 69 | 0 | 75 | 10.75 | 6.62 | 13.76 | 30.93 | 38.35 | -29.19 | 12.533 | 9.437 | 8.002 | 37.317 | 18.092 | 0.043 |
| 472 | 71 | 54 | 125 | 16.3 | 15.33 | 23.01 | 46.09 | 8.83 | -23.63 | 17.768 | 15.927 | 16.138 | 47.463 | 15.878 | -6.672 |
| 473 | 71 | 117 | 141 | 22.75 | 25.38 | 32.88 | 57.44 | -7.61 | -20.56 | 19.737 | 19.007 | 21.090 | 51.222 | 14.779 | -11.028 |
| 474 | 69 | 129 | 152 | 26.07 | 30.8 | 38.29 | 62.34 | -14.37 | -19.78 | 21.160 | 21.380 | 23.602 | 54.028 | 13.454 | -11.047 |
| 475 | 66 | 141 | 161 | 27.75 | 33.44 | 40.94 | 64.51 | -16.92 | -19.53 | 21.808 | 22.593 | 25.355 | 55.452 | 12.669 | -11.760 |
| 476 | 68 | 0 | 81 | 28.5 | 34.77 | 41.72 | 65.57 | -18.52 | -18.71 | 22.330 | 23.880 | 27.213 | 56.560 | 12.034 | -13.085 |
| 477 | 71 | 52 | 107 | 11.14 | 6.78 | 14.79 | 31.29 | 39.66 | -31.24 | 12.397 | 9.330 | 8.445 | 36.942 | 18.582 | -2.282 |
| 478 | 70 | 92 | 135 | 16.21 | 14.97 | 24.35 | 45.6 | 10.44 | -26.96 | 17.902 | 15.720 | 17.167 | 47.328 | 16.658 | -9.322 |
| 479 | 70 | 117 | 157 | 21.83 | 23.84 | 33.88 | 55.93 | -5.29 | -24.66 | 19.460 | 18.270 | 22.065 | 50.473 | 15.760 | -14.238 |
| 480 | 68 | 131 | 169 | 25.79 | 29.8 | 40.24 | 61.48 | -11.84 | -23.85 | 20.357 | 19.737 | 24.810 | 52.595 | 14.465 | -15.713 |
| 481 | 67 | 142 | 179 | 27.9 | 32.84 | 43.15 | 64.03 | -14.25 | -23.17 | 21.275 | 21.380 | 26.793 | 54.160 | 14.169 | -16.500 |
| 482 | 69 | 0 | 87 | 29.23 | 34.84 | 45.02 | 65.62 | -15.94 | -22.71 | 22.107 | 23.070 | 28.933 | 55.527 | 14.120 | -17.710 |
| 483 | 70 | 53 | 116 | 11.05 | 6.78 | 14.62 | 31.31 | 38.92 | -30.78 | 12.180 | 9.290 | 8.485 | 36.653 | 18.422 | -2.898 |
| 484 | 72 | 92 | 150 | 16.78 | 15.54 | 25.75 | 46.36 | 10.35 | -28.15 | 17.333 | 15.260 | 17.427 | 46.373 | 16.955 | -11.560 |
| 485 | 70 | 118 | 172 | 23.24 | 25.22 | 36.86 | 57.29 | -4.73 | -26.55 | 19.040 | 17.813 | 22.615 | 49.585 | 16.412 | -16.823 |
| 486 | 70 | 118 | 172 | 26.7 | 30.54 | 43.06 | 62.12 | -10.79 | -26.35 | 20.142 | 19.513 | 26.148 | 51.672 | 16.003 | -19.695 |
| 487 | 68 | 131 | 183 | 28.07 | 32.75 | 45.45 | 63.96 | -13.26 | -26.1 | 20.527 | 20.440 | 27.638 | 52.707 | 15.390 | -20.445 |
| 488 | 68 | 143 | 194 | 29.72 | 35.02 | 47.44 | 65.76 | -14.69 | -25.35 | 20.202 | 20.780 | 28.657 | 52.747 | 14.642 | -22.067 |
| 489 | 33 | 15 | 77 | 5.34 | 3.93 | 13.21 | 23.45 | 20.53 | -40.59 | 8.035 | 7.347 | 8.058 | 32.958 | 9.289 | -7.692 |
| 490 | 32 | 48 | 98 | 9.27 | 10.76 | 22.82 | 39.18 | -8.81 | -35.17 | 8.895 | 9.140 | 13.170 | 36.893 | 6.345 | -17.293 |
| 491 | 17 | 81 | 142 | 13.26 | 17.76 | 32.51 | 49.21 | -22.96 | -34.21 | 8.047 | 9.170 | 16.030 | 36.527 | 4.271 | -25.275 |
| 492 | 0 | 103 | 142 | 15.28 | 21.38 | 37.41 | 53.36 | -28.38 | -34.08 | 8.380 | 9.677 | 17.722 | 37.518 | 4.111 | -27.500 |
| 493 | 0 | 114 | 149 | 15.96 | 22.63 | 39.42 | 54.69 | -30.15 | -34.49 | 8.420 | 9.803 | 18.278 | 37.978 | 3.405 | -27.950 |
| 494 | 0 | 125 | 158 | 16.36 | 23.36 | 40.34 | 55.44 | -31.12 | -34.39 | 8.477 | 10.000 | 18.867 | 38.095 | 3.513 | -29.033 |
| 495 | 34 | 10 | 81 | 5.76 | 4.07 | 14.35 | 23.89 | 23.55 | -42.87 | 8.110 | 7.330 | 8.362 | 32.802 | 9.885 | -9.112 |
| 496 | 30 | 48 | 107 | 9.53 | 10.62 | 23.89 | 38.94 | -5.63 | -37.61 | 8.692 | 8.937 | 14.158 | 36.302 | 6.980 | -20.963 |
| 497 | 20 | 81 | 136 | 13.19 | 17.04 | 33.29 | 48.31 | -19.55 | -36.92 | 7.967 | 8.703 | 16.788 | 35.950 | 5.149 | -28.060 |
| 498 | 0 | 103 | 155 | 15.39 | 20.85 | 39.09 | 52.79 | -25.25 | -37.32 | 8.120 | 9.113 | 18.163 | 36.608 | 4.763 | -30.058 |
| 499 | 0 | 115 | 166 | 16.53 | 22.61 | 41.59 | 54.67 | -26.88 | -37.33 | 8.312 | 9.280 | 19.250 | 37.020 | 5.132 | -31.707 |
| 500 | 0 | 126 | 176 | 16.95 | 23.43 | 42.9 | 55.51 | -28.14 | -37.53 | 8.432 | 9.637 | 20.238 | 37.272 | 5.386 | -33.350 |
| 501 | 37 | 7 | 87 | 5.61 | 3.94 | 13.75 | 23.46 | 23.71 | -42.04 | 8.077 | 7.273 | 8.472 | 32.610 | 10.257 | -9.832 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 502 | 33 | 47 | 115 | 10.03 | 11.21 | 25.2 | 39.93 | -5.93 | -38.27 | 8.970 | 9.053 | 15.102 | 36.413 | 8.111 | -23.190 |
| 503 | 19 | 81 | 147 | 14.17 | 18.1 | 35.84 | 49.62 | -19.01 | -38.35 | 7.842 | 8.580 | 17.078 | 35.235 | 5.893 | -29.955 |
| 504 | 0 | 103 | 168 | 16.1 | 21.39 | 41.08 | 53.37 | -23.69 | -38.93 | 8.133 | 9.017 | 18.873 | 36.108 | 6.108 | -32.480 |
| 505 | 0 | 116 | 179 | 16.89 | 22.76 | 43.24 | 54.83 | -25.54 | -39.14 | 8.425 | 9.270 | 20.170 | 36.607 | 6.647 | -34.350 |
| 506 | 0 | 127 | 191 | 17.5 | 23.72 | 44.63 | 55.81 | -26.44 | -39.17 | 8.355 | 9.353 | 20.877 | 36.663 | 6.321 | -35.703 |
| 507 | 159 | 0 | 34 | 21.81 | 12.36 | 2.49 | 41.78 | 55.62 | 37.34 | 16.215 | 10.330 | 3.673 | 38.682 | 25.785 | 23.400 |
| 508 | 171 | 73 | 0 | 30.67 | 25.61 | 4.12 | 57.67 | 23.79 | 53.36 | 23.560 | 20.000 | 2.673 | 52.210 | 17.833 | 53.852 |
| 509 | 184 | 130 | 0 | 41.33 | 41.74 | 5.81 | 70.69 | 3.32 | 66.86 | 28.805 | 27.200 | 3.165 | 59.577 | 15.028 | 62.855 |
| 510 | 192 | 164 | 0 | 47.44 | 51.25 | 6.72 | 76.83 | -5.39 | 73.36 | 31.705 | 32.193 | 3.498 | 64.152 | 12.115 | 68.465 |
| 511 | 194 | 179 | 0 | 50.59 | 56.14 | 7.08 | 79.69 | -9.18 | 76.75 | 32.825 | 34.690 | 3.682 | 65.735 | 11.303 | 69.992 |
| 512 | 198 | 195 | 0 | 52.68 | 59.51 | 7.26 | 81.57 | -11.82 | 79.28 | 34.532 | 37.747 | 3.857 | 68.153 | 9.903 | 73.037 |
| 513 | 159 | 0 | 50 | 22.36 | 12.36 | 6.26 | 41.79 | 58.11 | 14.96 | 16.977 | 10.640 | 6.592 | 39.175 | 27.709 | 9.002 |
| 514 | 172 | 72 | 42 | 30.79 | 25.11 | 9.86 | 57.18 | 26.31 | 27.65 | 26.310 | 21.513 | 9.380 | 53.877 | 21.966 | 23.578 |
| 515 | 186 | 127 | 46 | 40.7 | 40.02 | 13.8 | 69.48 | 6.61 | 37.2 | 31.658 | 29.237 | 10.845 | 61.587 | 18.466 | 32.070 |
| 516 | 195 | 162 | 47 | 46.98 | 49.56 | 16.38 | 75.8 | -2.25 | 41.6 | 35.235 | 35.387 | 11.628 | 66.675 | 15.566 | 38.465 |
| 517 | 197 | 182 | 51 | 50.59 | 54.87 | 17.75 | 78.97 | -6.06 | 43.88 | 36.822 | 38.393 | 12.372 | 68.815 | 14.532 | 39.983 |
| 518 | 201 | 197 | 53 | 52.88 | 58.47 | 18.08 | 81 | -8.82 | 46.65 | 38.638 | 42.153 | 12.882 | 71.190 | 13.219 | 42.642 |
| 519 | 161 | 0 | 69 | 22.91 | 12.47 | 10.89 | 41.95 | 59.94 | -1.91 | 16.825 | 10.490 | 6.863 | 38.960 | 27.715 | 7.462 |
| 520 | 174 | 70 | 76 | 33.29 | 26.8 | 18.96 | 58.79 | 28.39 | 6.45 | 26.638 | 21.690 | 11.882 | 53.925 | 23.193 | 15.727 |
| 521 | 188 | 129 | 96 | 44.2 | 42.45 | 26.51 | 71.18 | 9.74 | 13.33 | 32.467 | 29.637 | 14.975 | 61.662 | 20.593 | 20.668 |
| 522 | 196 | 166 | 110 | 50.6 | 51.84 | 30.64 | 77.18 | 1.63 | 16.9 | 36.810 | 37.003 | 17.258 | 67.393 | 17.990 | 25.062 |
| 523 | 201 | 182 | 118 | 53.61 | 56.34 | 32.84 | 79.81 | -1.82 | 18.06 | 38.908 | 39.953 | 19.477 | 69.685 | 17.737 | 24.130 |
| 524 | 206 | 201 | 124 | 55.82 | 59.78 | 34.17 | 81.72 | -4.47 | 19.39 | 42.798 | 46.170 | 21.928 | 73.638 | 17.271 | 25.955 |
| 525 | 145 | 0 | 30 | 20.36 | 11.7 | 2.45 | 40.73 | 53.19 | 35.85 | 15.690 | 10.097 | 3.850 | 38.452 | 24.774 | 21.877 |
| 526 | 155 | 70 | 0 | 28.66 | 24.37 | 4.1 | 56.46 | 21.39 | 51.41 | 21.878 | 18.877 | 2.583 | 51.025 | 16.162 | 52.530 |
| 527 | 167 | 124 | 0 | 38.13 | 39.25 | 5.76 | 68.93 | 0.94 | 64.06 | 27.205 | 26.467 | 3.080 | 58.792 | 13.308 | 62.122 |
| 528 | 172 | 156 | 0 | 43.87 | 48.31 | 6.81 | 75.02 | -7.77 | 69.85 | 30.793 | 32.013 | 3.437 | 63.810 | 11.043 | 68.288 |
| 529 | 176 | 172 | 0 | 46.52 | 52.67 | 7.29 | 77.68 | -11.65 | 72.45 | 32.333 | 34.617 | 3.642 | 65.977 | 9.997 | 70.667 |
| 530 | 180 | 186 | 0 | 48.65 | 56.03 | 7.27 | 79.63 | -14.15 | 75.87 | 32.962 | 36.343 | 3.740 | 67.340 | 8.678 | 72.380 |
| 531 | 145 | 0 | 48 | 20.62 | 11.66 | 6.23 | 40.67 | 54.73 | 13.16 | 16.637 | 10.430 | 6.425 | 39.005 | 26.886 | 9.425 |
| 532 | 159 | 69 | 45 | 28.15 | 23.31 | 9.67 | 55.39 | 23.98 | 25.22 | 25.082 | 20.873 | 9.075 | 53.287 | 20.500 | 23.635 |
| 533 | 169 | 122 | 49 | 37.16 | 37.28 | 13.74 | 67.48 | 4.01 | 33.89 | 30.695 | 28.827 | 11.468 | 61.270 | 17.491 | 29.623 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 534 | 175 | 155 | 53 | 43.15 | 46.44 | 16.33 | 73.83 | -4.74 | 38.32 | 35.767 | 36.493 | 13.235 | 67.535 | 15.168 | 35.367 |
| 535 | 181 | 172 | 55 | 46.11 | 51.05 | 17.13 | 76.71 | -8.6 | 41.41 | 37.172 | 39.393 | 13.707 | 69.427 | 14.156 | 37.338 |
| 536 | 183 | 188 | 57 | 48.73 | 54.92 | 18.06 | 79 | -11.19 | 43.25 | 38.805 | 42.523 | 13.965 | 71.575 | 13.072 | 40.360 |
| 537 | 147 | 0 | 66 | 21.06 | 11.69 | 10.88 | 40.72 | 56.62 | -4.01 | 16.252 | 10.137 | 6.640 | 38.502 | 26.818 | 7.628 |
| 538 | 160 | 69 | 78 | 30.67 | 25.18 | 18.87 | 57.25 | 25.58 | 3.97 | 25.598 | 21.087 | 11.907 | 53.442 | 22.003 | 14.833 |
| 539 | 172 | 123 | 98 | 40.98 | 40.03 | 26.5 | 69.49 | 7.44 | 10.43 | 32.088 | 29.983 | 15.657 | 61.963 | 19.418 | 19.497 |
| 540 | 178 | 158 | 111 | 47.01 | 48.91 | 30.69 | 75.4 | -0.43 | 13.74 | 37.073 | 37.293 | 19.413 | 67.732 | 18.367 | 20.887 |
| 541 | 182 | 176 | 118 | 49.84 | 53.12 | 32.44 | 77.95 | -3.67 | 15.44 | 39.910 | 41.317 | 21.318 | 70.770 | 17.883 | 22.225 |
| 542 | 186 | 191 | 125 | 52.39 | 56.85 | 34.36 | 80.1 | -6.19 | 16.31 | 40.505 | 43.767 | 22.080 | 72.223 | 16.355 | 23.225 |
| 543 | 129 | 0 | 27 | 18.24 | 10.7 | 2.46 | 39.06 | 49.66 | 32.92 | 14.952 | 9.900 | 4.082 | 38.007 | 23.583 | 19.708 |
| 544 | 197 | 67 | 2 | 25.81 | 22.54 | 4.08 | 54.59 | 17.95 | 48.3 | 20.632 | 18.297 | 2.583 | 50.193 | 14.860 | 51.085 |
| 545 | 147 | 118 | 0 | 34.35 | 36.34 | 5.71 | 66.78 | -2.34 | 60.62 | 25.355 | 25.027 | 3.052 | 57.588 | 11.798 | 60.243 |
| 546 | 151 | 147 | 0 | 39.45 | 44.55 | 6.67 | 72.59 | -10.69 | 66.26 | 28.505 | 30.070 | 3.390 | 62.410 | 9.292 | 66.172 |
| 547 | 155 | 163 | 0 | 41.87 | 48.58 | 7.07 | 75.19 | -14.42 | 69.05 | 29.277 | 32.030 | 3.477 | 63.725 | 8.260 | 67.857 |
| 548 | 160 | 177 | 0 | 44.11 | 51.98 | 7.36 | 77.27 | -16.75 | 71.45 | 28.810 | 33.033 | 3.615 | 64.513 | 6.219 | 68.312 |
| 549 | 132 | 0 | 46 | 18.79 | 10.79 | 6.29 | 39.22 | 51.86 | 10.38 | 15.753 | 10.287 | 6.440 | 38.602 | 25.305 | 8.667 |
| 550 | 142 | 67 | 47 | 26.03 | 22.16 | 9.82 | 54.2 | 20.54 | 22.66 | 23.367 | 19.867 | 9.280 | 52.188 | 19.017 | 21.017 |
| 551 | 151 | 116 | 52 | 33.87 | 34.72 | 13.56 | 65.53 | 1.39 | 31 | 28.732 | 27.323 | 11.433 | 59.997 | 15.949 | 27.528 |
| 552 | 158 | 149 | 57 | 39.75 | 43.66 | 16.4 | 72 | -7.2 | 34.99 | 33.663 | 34.580 | 13.745 | 66.125 | 14.130 | 31.555 |
| 553 | 158 | 164 | 60 | 42.57 | 48.03 | 17.33 | 74.84 | -10.82 | 37.74 | 35.718 | 37.770 | 14.358 | 68.348 | 13.890 | 33.767 |
| 554 | 160 | 179 | 60 | 44.37 | 50.98 | 17.79 | 76.67 | -13.4 | 39.84 | 35.595 | 39.477 | 14.485 | 69.435 | 11.722 | 35.318 |
| 555 | 133 | 0 | 66 | 19.37 | 10.94 | 10.9 | 39.49 | 53.7 | -6.21 | 15.563 | 10.067 | 7.073 | 38.205 | 25.543 | 5.273 |
| 556 | 144 | 66 | 78 | 28.08 | 23.45 | 18.79 | 55.53 | 23.12 | 1.18 | 23.610 | 19.797 | 11.945 | 52.142 | 20.300 | 12.463 |
| 557 | 152 | 118 | 96 | 37.4 | 37.14 | 26 | 67.38 | 5.24 | 7.66 | 30.503 | 28.843 | 16.350 | 60.968 | 18.451 | 16.112 |
| 558 | 160 | 150 | 112 | 43.08 | 45.5 | 30.27 | 73.22 | -2.3 | 10.63 | 36.472 | 36.990 | 21.827 | 67.590 | 18.058 | 15.735 |
| 559 | 164 | 167 | 121 | 45.88 | 49.65 | 32.3 | 75.86 | -5.58 | 12.05 | 38.087 | 39.677 | 23.263 | 69.625 | 17.346 | 16.480 |
| 560 | 167 | 182 | 126 | 47.53 | 52.4 | 33.37 | 77.52 | -8.11 | 13.33 | 39.085 | 42.417 | 24.600 | 71.175 | 16.503 | 16.692 |
| 561 | 103 | 10 | 25 | 14.44 | 9.01 | 2.54 | 36.01 | 41.36 | 26.95 | 13.662 | 9.413 | 4.420 | 37.218 | 21.088 | 16.368 |
| 562 | 107 | 64 | 19 | 20.6 | 19.26 | 4.12 | 50.99 | 10.19 | 41.83 | 18.490 | 16.803 | 2.803 | 48.590 | 12.580 | 46.588 |
| 563 | 114 | 105 | 0 | 27.21 | 30.69 | 5.58 | 62.24 | -9.3 | 53.41 | 21.830 | 22.527 | 3.157 | 55.062 | 8.790 | 55.140 |
| 564 | 117 | 133 | 0 | 31.13 | 37.52 | 6.55 | 67.66 | -17.62 | 58.3 | 23.452 | 26.173 | 3.287 | 58.857 | 5.193 | 60.748 |
| 565 | 117 | 146 | 0 | 33.05 | 40.85 | 6.95 | 70.07 | -21.07 | 60.73 | 24.018 | 26.970 | 3.373 | 59.808 | 4.767 | 61.815 |

**Table B-1 (CONTINUED)**

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 566 | 119 | 160 | 0 | 35.1 | 43.94 | 7.29 | 72.19 | -23.13 | 62.98 | 23.735 | 27.677 | 3.403 | 60.033 | 3.930 | 61.990 |
| 567 | 104 | 0 | 43 | 14.88 | 8.89 | 6.17 | 35.77 | 45.07 | 5 | 14.737 | 10.003 | 6.540 | 38.197 | 23.009 | 7.523 |
| 568 | 111 | 63 | 51 | 20.51 | 18.42 | 9.54 | 50 | 13.98 | 16.36 | 21.280 | 18.580 | 10.147 | 50.615 | 17.295 | 15.397 |
| 569 | 116 | 107 | 59 | 27.18 | 29.42 | 13.23 | 61.15 | -4.73 | 24.35 | 25.658 | 25.130 | 12.847 | 58.060 | 13.797 | 20.110 |
| 570 | 121 | 134 | 62 | 31.83 | 36.9 | 15.73 | 67.2 | -13.06 | 28.34 | 28.023 | 29.917 | 13.905 | 62.298 | 10.663 | 24.530 |
| 571 | 122 | 148 | 65 | 34.21 | 40.59 | 16.67 | 69.89 | -16.25 | 30.72 | 28.273 | 31.483 | 14.135 | 63.358 | 9.315 | 25.753 |
| 572 | 123 | 162 | 68 | 35.7 | 43.16 | 17.17 | 71.66 | -18.83 | 32.6 | 27.957 | 32.023 | 14.118 | 63.777 | 7.877 | 26.517 |
| 573 | 106 | 0 | 64 | 15.7 | 9.2 | 10.7 | 36.37 | 47.31 | -10.96 | 14.637 | 9.783 | 7.505 | 37.847 | 23.532 | 2.890 |
| 574 | 113 | 62 | 79 | 22.81 | 19.87 | 18.19 | 51.69 | 17.44 | -4.12 | 21.482 | 18.410 | 12.792 | 50.570 | 18.434 | 7.335 |
| 575 | 119 | 107 | 99 | 30.77 | 31.92 | 25.55 | 63.28 | -0.01 | 1.36 | 27.845 | 26.817 | 18.977 | 59.155 | 17.405 | 7.040 |
| 576 | 123 | 136 | 113 | 35.55 | 39.15 | 29.73 | 68.86 | -7.23 | 3.98 | 30.840 | 32.317 | 22.598 | 63.900 | 15.154 | 7.882 |
| 577 | 124 | 150 | 119 | 37.33 | 42.12 | 31.26 | 70.95 | -10.39 | 5.19 | 32.095 | 33.827 | 24.732 | 65.263 | 15.519 | 6.262 |
| 578 | 125 | 164 | 127 | 38.98 | 44.8 | 32.53 | 72.76 | -12.87 | 6.37 | 32.690 | 35.893 | 25.522 | 66.535 | 14.274 | 7.042 |
| 579 | 62 | 21 | 28 | 8.04 | 5.74 | 2.41 | 28.74 | 25.62 | 15.54 | 11.248 | 9.170 | 5.790 | 36.792 | 14.307 | 8.523 |
| 580 | 63 | 57 | 27 | 11.94 | 13.43 | 3.91 | 43.41 | -6.84 | 30.08 | 14.115 | 14.003 | 4.925 | 44.797 | 7.948 | 26.662 |
| 581 | 60 | 91 | 21 | 16.26 | 22.02 | 5.39 | 54.05 | -25.71 | 40.24 | 14.847 | 16.603 | 3.490 | 48.472 | 2.793 | 41.478 |
| 582 | 58 | 114 | 14 | 18.67 | 26.83 | 6.36 | 58.81 | -33.21 | 43.87 | 15.313 | 18.753 | 3.272 | 51.023 | -0.715 | 47.362 |
| 583 | 55 | 125 | 9 | 19.76 | 29.04 | 6.7 | 60.82 | -36.33 | 45.83 | 15.848 | 19.897 | 3.297 | 52.230 | -1.447 | 49.265 |
| 584 | 53 | 136 | 0 | 21.05 | 31.06 | 6.97 | 62.56 | -37.55 | 47.68 | 15.578 | 19.883 | 3.177 | 52.353 | -2.435 | 50.293 |
| 585 | 65 | 16 | 45 | 9.1 | 6.13 | 6.16 | 29.75 | 30.49 | -5.36 | 11.540 | 8.713 | 6.912 | 35.760 | 17.437 | 1.732 |
| 586 | 66 | 56 | 55 | 12.73 | 13.38 | 9.44 | 43.33 | -1.13 | 5.2 | 16.618 | 15.293 | 10.388 | 46.598 | 13.070 | 7.693 |
| 587 | 65 | 91 | 63 | 17.01 | 21.44 | 12.93 | 53.42 | -18.83 | 11.86 | 18.665 | 19.093 | 12.573 | 51.748 | 9.109 | 9.997 |
| 588 | 64 | 115 | 69 | 20.24 | 27.01 | 15.52 | 58.99 | -26.05 | 14.67 | 19.278 | 21.490 | 13.898 | 54.465 | 5.846 | 11.047 |
| 589 | 62 | 126 | 72 | 21.79 | 29.71 | 16.32 | 61.41 | -29.1 | 16.92 | 19.315 | 22.507 | 14.100 | 55.353 | 4.244 | 12.045 |
| 590 | 61 | 138 | 76 | 22.75 | 31.45 | 16.81 | 62.88 | -31.03 | 18.32 | 19.447 | 23.473 | 14.478 | 56.135 | 3.158 | 12.415 |
| 591 | 66 | 10 | 63 | 9.94 | 6.32 | 10.44 | 30.2 | 35.34 | -20.76 | 11.552 | 8.633 | 7.513 | 35.555 | 18.009 | -1.085 |
| 592 | 69 | 56 | 80 | 15.1 | 14.81 | 17.95 | 45.37 | 4.95 | -14.47 | 16.768 | 15.173 | 13.322 | 46.223 | 14.834 | -1.632 |
| 593 | 70 | 92 | 100 | 20.45 | 23.8 | 25.09 | 55.89 | -11.66 | -10.56 | 19.525 | 19.503 | 18.375 | 51.718 | 12.604 | -4.478 |
| 594 | 69 | 116 | 114 | 23.71 | 29.07 | 28.92 | 60.84 | -17.96 | -8.54 | 22.128 | 23.720 | 22.752 | 56.068 | 11.478 | -5.927 |
| 595 | 70 | 128 | 120 | 24.83 | 31.11 | 30.54 | 62.6 | -20.72 | -8.08 | 22.223 | 24.277 | 23.492 | 56.863 | 10.402 | -5.938 |
| 596 | 63 | 140 | 128 | 25.88 | 32.82 | 31.6 | 64.01 | -22.34 | -7.29 | 22.863 | 25.783 | 24.175 | 58.105 | 9.785 | -5.067 |
| 597 | 32 | 23 | 31 | 2.75 | 3.02 | 2.43 | 20.12 | -2.93 | 0.54 | 3.877 | 3.720 | 3.053 | 23.310 | 3.967 | 1.143 |

Table B-1 (CONTINUED)

| No. | R | G | B | Xp | Yp | Zp | L*p | a*p | b*p | Xc | Yc | Zc | L*c | a*c | b*c |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 598 | 25 | 51 | 31 | 4.69 | 8.58 | 3.72 | 35.16 | -37.97 | 17 | 6.425 | 7.577 | 5.793 | 33.663 | -0.650 | 3.120 |
| 599 | 0 | 79 | 32 | 6.8 | 14.35 | 5.18 | 44.72 | -55.16 | 25.21 | 6.090 | 8.237 | 6.495 | 35.048 | -4.993 | 2.300 |
| 600 | 0 | 97 | 37 | 7.79 | 17.16 | 6.08 | 48.46 | -61.72 | 27.29 | 6.282 | 8.977 | 7.077 | 36.587 | -6.772 | 2.462 |
| 601 | 0 | 108 | 42 | 8.21 | 18.31 | 6.35 | 49.87 | -63.9 | 28.48 | 6.360 | 9.257 | 7.322 | 37.130 | -7.417 | 2.413 |
| 602 | 0 | 117 | 45 | 8.61 | 19.14 | 6.56 | 50.85 | -64.67 | 29.25 | 6.537 | 9.760 | 7.635 | 38.002 | -8.007 | 2.642 |
| 603 | 33 | 20 | 48 | 3.65 | 3.29 | 5.77 | 21.18 | 7.65 | -18.28 | 6.622 | 6.113 | 6.113 | 30.130 | 7.609 | -4.463 |
| 604 | 28 | 50 | 56 | 6.07 | 8.98 | 9.38 | 35.94 | -25.02 | -7.33 | 7.417 | 8.317 | 9.100 | 34.903 | 2.593 | -8.143 |
| 605 | 13 | 80 | 66 | 8.32 | 14.4 | 12.8 | 44.8 | -41.14 | -2.65 | 7.065 | 8.467 | 10.768 | 35.938 | -0.689 | -11.865 |
| 606 | 0 | 100 | 74 | 9.91 | 17.86 | 15.32 | 49.33 | -47.38 | -1.48 | 7.360 | 9.453 | 11.875 | 37.468 | -1.889 | -12.625 |
| 607 | 0 | 110 | 81 | 10.24 | 18.93 | 15.9 | 50.6 | -50.3 | -0.69 | 7.668 | 10.213 | 12.465 | 38.657 | -2.613 | -12.270 |
| 608 | 0 | 119 | 84 | 10.89 | 20.09 | 16.46 | 51.94 | -51.13 | 0.27 | 7.858 | 10.700 | 13.165 | 39.403 | -3.159 | -12.930 |
| 609 | 34 | 16 | 63 | 4.81 | 3.7 | 9.94 | 22.64 | 17.53 | -32.16 | 6.960 | 6.433 | 7.015 | 30.688 | 8.397 | -7.442 |
| 610 | 29 | 49 | 81 | 8.38 | 10.43 | 18.07 | 38.6 | -13.84 | -26.43 | 7.820 | 8.237 | 11.487 | 34.685 | 5.510 | -16.262 |
| 611 | 16 | 80 | 99 | 11.8 | 16.92 | 25.15 | 48.16 | -28.3 | -23.99 | 7.182 | 8.383 | 13.985 | 34.967 | 2.565 | -22.797 |
| 612 | 0 | 101 | 114 | 13.31 | 19.94 | 28.64 | 51.76 | -33.71 | -23.74 | 7.788 | 9.433 | 16.113 | 36.948 | 2.107 | -24.745 |
| 613 | 0 | 113 | 122 | 14 | 21.19 | 30.07 | 53.16 | -35.29 | -23.62 | 8.110 | 9.860 | 16.855 | 37.713 | 2.146 | -25.175 |
| 614 | 0 | 123 | 128 | 14.36 | 21.98 | 30.95 | 54 | -36.71 | -23.56 | 8.528 | 10.430 | 18.137 | 38.855 | 1.980 | -26.132 |

Table B-2 The X,Y,Z,L*,a*,b*, of the colour copier prints with using the system model 1 , system model 2 and modified system model 2

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 1 | 37.913 | 38.889 | 30.926 | 38.352 | 39.214 | 31.104 | 21.63 | 21.955 | 16.57 | 53.98 | 2.165 | 3.525 | 39.2 | 39.51 | 32.575 | 69.105 | 3.525 | 0.025 |
| 2 | 55.629 | 53.978 | 33.884 | 54.467 | 53.264 | 34.587 | 38.115 | 39.225 | 16.94 | 68.915 | 0.94 | 28.41 | 46.56 | 43.345 | 27.875 | 71.775 | 13.885 | 12.06 |
| 3 | 41.352 | 40.256 | 47.022 | 44.220 | 44.238 | 48.597 | 26.955 | 25.815 | 31.685 | 57.86 | 8.565 | -18.045 | 34.995 | 33.715 | 39.175 | 64.72 | 8.67 | -16.855 |
| 4 | 39.777 | 33.686 | 13.486 | 42.421 | 36.997 | 14.666 | 28.835 | 21.335 | 6.15 | 53.315 | 35.585 | 35.335 | 38.14 | 30.645 | 14.425 | 62.195 | 29.96 | 23.01 |
| 5 | 29.195 | 40.195 | 22.818 | 38.434 | 50.520 | 27.376 | 11.395 | 22.34 | 11.685 | 54.385 | -57.995 | 17.1 | 25.4 | 34.155 | 22.385 | 65.07 | -28.995 | 10.32 |
| 6 | 21.751 | 19.416 | 30.839 | 22.935 | 20.936 | 33.385 | 12.235 | 9.775 | 25.525 | 37.44 | 20.94 | -43.145 | 17.755 | 17.71 | 26.605 | 49.125 | 3.69 | -24.85 |
| 7 | 9.092 | 9.568 | 8.630 | 9.227 | 9.524 | 8.299 | 2.775 | 3.47 | 2.195 | 21.83 | -9.785 | 5.515 | 4.665 | 4.92 | 4.17 | 26.475 | -0.995 | -0.69 |
| 8 | 23.738 | 11.484 | 2.308 | 25.784 | 10.958 | -1.593 | 21.425 | 11.865 | 1.62 | 41.005 | 57.15 | 44.295 | 26.7 | 15.805 | 8.28 | 46.715 | 55.56 | 15.195 |
| 9 | 12.257 | 25.159 | 11.176 | 27.726 | 47.730 | 19.113 | 7.045 | 17.4 | 5.775 | 48.765 | -70.12 | 29.235 | 10.495 | 21.275 | 12.07 | 53.25 | -59.775 | 14 |
| 10 | 9.402 | 7.302 | 18.371 | 7.896 | 5.009 | 19.378 | 5.29 | 3.235 | 15.09 | 20.955 | 30.75 | -49.835 | 10.445 | 9.955 | 20.565 | 37.73 | 6.655 | -33.215 |
| 11 | 61.050 | 69.492 | 8.518 | 67.811 | 80.689 | 15.345 | 46.125 | 50.665 | 4.415 | 76.475 | -7.56 | 84.07 | 56.475 | 65.25 | 5.185 | 84.615 | -15.34 | 93.96 |
| 12 | 26.693 | 13.325 | 17.035 | 32.756 | 17.214 | 21.438 | 21.445 | 11.69 | 8.495 | 40.725 | 58.435 | 4.045 | 29.03 | 16.575 | 16.85 | 47.72 | 60.44 | -7.92 |
| 13 | 18.480 | 25.440 | 58.175 | 69.016 | 102.782 | 101.293 | 12.715 | 20.255 | 29.74 | 52.125 | -39.16 | -24.885 | 23.66 | 31.11 | 47.385 | 62.595 | -25.765 | -30.75 |
| 14 | 75.780 | 77.642 | 65.685 | 71.963 | 72.994 | 59.213 | 66.39 | 66.725 | 59.105 | 85.365 | 4.6 | -4.2 | 74.575 | 77.265 | 64.65 | 90.445 | 0.165 | -0.88 |
| 15 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.685 | 2.04 | 1.425 | 15.685 | -6.82 | 2.95 | 1.995 | 2.075 | 1.745 | 15.89 | -0.12 | -0.31 |
| 16 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.715 | 2.065 | 1.4 | 15.825 | -6.72 | 3.48 | 1.975 | 2.055 | 1.72 | 15.775 | -0.12 | -0.265 |
| 17 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.7 | 2.035 | 1.395 | 15.68 | -6.45 | 3.235 | 1.935 | 2.015 | 1.68 | 15.56 | -0.14 | -0.21 |
| 18 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.72 | 2.04 | 1.45 | 15.71 | -6.025 | 2.65 | 1.935 | 2.015 | 1.675 | 15.56 | -0.105 | -0.165 |
| 19 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.775 | 2.075 | 1.48 | 15.885 | -5.435 | 2.605 | 1.975 | 2.055 | 1.725 | 15.765 | -0.055 | -0.34 |
| 20 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.75 | 2.05 | 1.44 | 15.755 | -5.44 | 2.91 | 1.915 | 1.99 | 1.66 | 15.42 | -0.1 | -0.195 |
| 21 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.77 | 2.12 | 1.435 | 16.115 | -6.49 | 3.495 | 1.915 | 1.985 | 1.66 | 15.425 | -0.09 | -0.22 |
| 22 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.745 | 2.065 | 1.415 | 15.81 | -5.835 | 3.305 | 1.89 | 1.965 | 1.64 | 15.29 | -0.065 | -0.265 |
| 23 | 65.034 | 65.566 | 49.800 | 61.264 | 61.395 | 47.102 | 56.26 | 60.51 | 41.055 | 82.115 | -5.1 | 10.66 | 58.55 | 57.615 | 45.73 | 80.52 | 7.36 | 2.125 |
| 24 | 62.505 | 67.254 | 53.476 | 62.011 | 65.212 | 50.746 | 50.135 | 49.795 | 48.675 | 75.94 | 5.76 | -9.225 | 66.79 | 71.205 | 51.76 | 87.585 | -4.08 | 7.37 |
| 25 | 58.286 | 58.771 | 58.911 | 59.995 | 61.259 | 57.476 | 46.48 | 48.755 | 43.35 | 75.3 | -1.49 | -3.98 | 58.35 | 57.695 | 57.92 | 80.57 | 6.675 | -11.265 |
| 26 | 48.848 | 56.503 | 40.350 | 52.179 | 58.444 | 41.050 | 30.375 | 35.165 | 28.655 | 65.88 | -12.715 | 0.585 | 46.425 | 53.02 | 35.525 | 77.88 | -12.79 | 10.845 |
| 27 | 74.321 | 76.608 | 65.151 | 71.315 | 72.716 | 59.153 | 63.585 | 63.155 | 58.375 | 83.525 | 6.215 | -6.63 | 74.145 | 76.805 | 64.2 | 90.23 | 0.19 | -0.815 |
| 28 | 72.544 | 75.200 | 65.142 | 70.814 | 72.696 | 59.785 | 59.13 | 58.89 | 55.995 | 81.235 | 5.695 | -8.125 | 74.265 | 76.89 | 64.53 | 90.27 | 0.255 | -1.055 |
| 29 | 71.368 | 74.165 | 65.433 | 70.599 | 72.799 | 60.541 | 62.645 | 62.575 | 56.225 | 83.22 | 5.395 | -4.95 | 74.64 | 77.26 | 64.955 | 90.44 | 0.31 | -1.165 |
| 30 | 68.315 | 71.671 | 65.278 | 69.694 | 72.756 | 61.605 | 57.615 | 57.915 | 52.685 | 80.695 | 4.37 | -5.53 | 74.595 | 77.26 | 64.73 | 90.44 | 0.21 | -0.955 |
| 31 | 66.037 | 70.085 | 64.794 | 69.082 | 72.980 | 62.130 | 51.965 | 52.745 | 50.785 | 77.72 | 2.93 | -8.545 | 74.03 | 76.75 | 64.52 | 90.205 | 0.045 | -1.155 |
| 32 | 63.797 | 68.132 | 64.938 | 68.591 | 73.205 | 63.347 | 47.4 | 48.775 | 46.16 | 75.31 | 1.04 | -7.375 | 72.095 | 75.19 | 64.18 | 89.485 | -0.85 | -2.085 |
| 33 | 61.607 | 66.268 | 64.517 | 67.824 | 73.092 | 63.934 | 44.37 | 46.315 | 44.375 | 73.75 | -0.835 | -7.91 | 67.89 | 71.835 | 63.565 | 87.885 | -2.99 | -4.24 |
| 34 | 56.097 | 61.584 | 64.867 | 67.203 | 74.807 | 67.652 | 38.02 | 41.18 | 46.585 | 70.305 | -5.345 | -16.515 | 59.065 | 64.375 | 61.365 | 84.155 | -7.095 | -8.535 |
| 35 | 50.574 | 56.167 | 63.570 | 64.715 | 73.775 | 69.225 | 28.79 | 34.1 | 39.41 | 65.04 | -15.115 | -16.625 | 49.8 | 56.225 | 59.065 | 79.735 | -11.525 | -13.865 |
| 36 | 45.529 | 51.784 | 63.029 | 64.230 | 75.942 | 72.618 | 22.675 | 28.955 | 37.265 | 60.74 | -22.13 | -21.15 | 50.815 | 57.185 | 59.705 | 80.275 | -11.17 | -13.575 |
| 37 | 39.319 | 46.101 | 62.240 | 63.994 | 79.414 | 77.499 | 18.175 | 26.4 | 34.14 | 58.415 | -34.065 | -20.745 | 39.18 | 46.49 | 55.59 | 73.855 | -17.01 | -20.42 |
| 38 | 32.872 | 39.671 | 61.689 | 64.284 | 84.061 | 84.010 | 13.58 | 22.01 | 28.345 | 54.04 | -41.76 | -19.325 | 29.14 | 36.64 | 50.51 | 67 | -22.275 | -26.725 |
| 39 | 24.057 | 30.993 | 59.701 | 66.207 | 93.700 | 93.727 | 12.81 | 20.375 | 29.895 | 52.255 | -39.09 | -24.915 | 24.035 | 31.495 | 47.495 | 62.915 | -25.525 | -30.32 |
| 40 | 74.200 | 75.687 | 64.700 | 70.635 | 71.516 | 58.737 | 67.775 | 69.38 | 60.07 | 86.69 | 1.92 | -2.88 | 74.215 | 76.855 | 64.47 | 90.255 | 0.23 | -1.02 |
| 41 | 72.489 | 73.667 | 63.582 | 69.253 | 70.013 | 58.162 | 69.51 | 72 | 60.075 | 87.97 | 0.19 | -0.68 | 74.205 | 76.845 | 64.465 | 90.245 | 0.23 | -1.03 |
| 42 | 71.604 | 72.341 | 62.903 | 68.431 | 68.945 | 57.809 | 68.345 | 71.15 | 58.27 | 87.555 | -0.565 | 0.43 | 72.705 | 74.365 | 63.66 | 89.09 | 2.09 | -2.25 |
| 43 | 69.484 | 69.658 | 61.253 | 66.658 | 66.857 | 56.870 | 66.8 | 70.045 | 56.04 | 87.02 | -1.63 | 1.805 | 68.285 | 67.41 | 61.04 | 85.705 | 7.295 | -5.55 |
| 44 | 67.802 | 67.072 | 59.620 | 65.204 | 64.822 | 55.969 | 61.395 | 65.545 | 50.17 | 84.765 | -4.18 | 4.285 | 65.175 | 62.925 | 59.07 | 83.395 | 10.355 | -7.55 |
| 45 | 65.318 | 63.990 | 57.817 | 63.307 | 62.544 | 54.962 | 58.94 | 62.63 | 45.06 | 83.25 | -3.45 | 7.625 | 61.85 | 58.705 | 57.655 | 81.12 | 12.565 | -10.035 |
| 46 | 63.216 | 61.258 | 55.728 | 61.596 | 60.358 | 53.602 | 54.335 | 58.745 | 41.98 | 81.15 | -5.765 | 7.825 | 59.145 | 55.06 | 55.85 | 79.065 | 15.035 | -11.705 |
| 47 | 59.145 | 55.560 | 51.227 | 58.509 | 55.955 | 50.715 | 45.63 | 46.91 | 35.025 | 74.13 | 1.145 | 5.07 | 54.14 | 48.69 | 51.635 | 75.24 | 19.18 | -13.76 |
| 48 | 54.830 | 49.629 | 46.405 | 55.421 | 51.402 | 47.465 | 38.725 | 35.87 | 28.825 | 66.42 | 13.65 | 1.235 | 51.565 | 44.45 | 47.275 | 72.52 | 24.295 | -13.51 |
| 49 | 50.019 | 43.095 | 40.497 | 52.064 | 46.270 | 43.111 | 33.14 | 26.475 | 24.735 | 58.485 | 29.195 | -5.445 | 46.055 | 37.29 | 39.035 | 67.48 | 30.99 | -11.91 |
| 50 | 44.718 | 36.296 | 35.164 | 48.051 | 40.498 | 38.830 | 30.315 | 22.055 | 22.285 | 54.085 | 37.885 | -8.45 | 42.33 | 32.54 | 31.655 | 63.78 | 36.125 | -7.775 |
| 51 | 39.846 | 28.657 | 27.791 | 45.750 | 34.697 | 33.164 | 27.69 | 17.415 | 18.405 | 48.785 | 50.63 | -9.61 | 39.735 | 29.135 | 27.665 | 60.895 | 40.62 | -6.37 |

Table B-2 (CONTINUED)

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 52 | 27.243 | 13.472 | 17.471 | 33.898 | 17.836 | 22.437 | 22.67 | 12.355 | 11.61 | 41.775 | 59.595 | -4.43 | 36.225 | 25.31 | 22.895 | 57.36 | 44.55 | -3.945 |
| 53 | 74.847 | 76.733 | 63.809 | 70.628 | 71.551 | 57.584 | 66.73 | 67.16 | 59.51 | 85.585 | 4.405 | -4.23 | 74.6 | 77.295 | 64.66 | 90.46 | 0.145 | -0.855 |
| 54 | 74.272 | 76.436 | 61.808 | 69.563 | 70.503 | 55.732 | 65.3 | 66.215 | 59.26 | 85.11 | 3.28 | -4.8 | 74.825 | 77.65 | 64.39 | 90.62 | -0.09 | -0.32 |
| 55 | 73.659 | 75.800 | 60.611 | 68.776 | 69.671 | 54.744 | 62.52 | 63.85 | 59.365 | 83.89 | 2.205 | -7.005 | 73.98 | 77.025 | 62.49 | 90.33 | -0.585 | 1.015 |
| 56 | 72.893 | 75.317 | 58.072 | 67.558 | 68.530 | 52.506 | 60.85 | 60.97 | 57.74 | 82.36 | 4.895 | -7.99 | 70.175 | 72.45 | 56.005 | 88.185 | 0.69 | 3.845 |
| 57 | 72.159 | 74.902 | 55.368 | 66.451 | 67.578 | 50.178 | 60.96 | 61.05 | 57.665 | 82.405 | 4.985 | -7.835 | 66.585 | 67.565 | 50.715 | 85.78 | 3.22 | 5.425 |
| 58 | 71.392 | 74.525 | 52.836 | 65.529 | 66.912 | 48.065 | 60.22 | 59.735 | 56.045 | 81.695 | 6.295 | -7.38 | 65.47 | 66.57 | 47.46 | 85.275 | 2.915 | 8.285 |
| 59 | 70.649 | 73.861 | 50.083 | 64.680 | 66.230 | 45.909 | 62.075 | 61.91 | 53.68 | 82.865 | 5.595 | -2.855 | 62.89 | 64.035 | 43.225 | 83.975 | 2.665 | 11.15 |
| 60 | 69.806 | 73.799 | 44.969 | 63.927 | 66.266 | 41.878 | 57.4 | 60.025 | 37.34 | 81.85 | -1.165 | 15.155 | 59.715 | 60.825 | 36.93 | 82.275 | 2.56 | 16.46 |
| 61 | 68.120 | 73.050 | 38.706 | 63.197 | 66.739 | 37.213 | 52.965 | 55.02 | 24.375 | 79.05 | -0.23 | 30.675 | 56.59 | 57.47 | 31.75 | 80.435 | 2.935 | 20.795 |
| 62 | 67.178 | 72.894 | 32.694 | 63.644 | 68.598 | 32.959 | 47.39 | 52.385 | 16.94 | 77.51 | -8.46 | 43.23 | 54.79 | 56.225 | 25.69 | 79.73 | 1.465 | 29.525 |
| 63 | 65.739 | 72.344 | 25.372 | 64.662 | 71.635 | 27.851 | 49.03 | 56.86 | 12.975 | 80.1 | -15.14 | 57.735 | 53.6 | 56.19 | 20.645 | 79.72 | -1.475 | 39.02 |
| 64 | 61.749 | 70.280 | 8.701 | 68.621 | 81.718 | 15.725 | 42.295 | 47.15 | 4.7 | 74.285 | -9.255 | 78.715 | 54.51 | 57.985 | 18.11 | 80.73 | -3.51 | 46.14 |
| 65 | 61.636 | 70.073 | 8.664 | 68.497 | 81.507 | 15.665 | 45.485 | 49.935 | 4.375 | 76.03 | -7.46 | 83.515 | 59.805 | 69.245 | 12.02 | 86.63 | -15.935 | 71.7 |
| 66 | 73.489 | 75.528 | 64.224 | 70.349 | 71.582 | 58.449 | 65.885 | 66.58 | 59.92 | 85.29 | 3.79 | -5.14 | 74.44 | 77.12 | 64.58 | 90.375 | 0.165 | -0.915 |
| 67 | 70.198 | 72.432 | 61.988 | 67.925 | 69.404 | 57.161 | 61.44 | 62.505 | 57.015 | 83.18 | 2.755 | -5.83 | 74.445 | 77.085 | 64.685 | 90.365 | 0.24 | -1.05 |
| 68 | 67.883 | 70.217 | 60.328 | 66.151 | 67.776 | 56.129 | 60.125 | 60.365 | 55.74 | 82.03 | 4.6 | -6.475 | 73.02 | 75.25 | 63.43 | 89.51 | 0.975 | -1.315 |
| 69 | 63.901 | 66.343 | 57.326 | 62.979 | 64.801 | 54.125 | 56.585 | 58 | 52.64 | 80.735 | 1.64 | -5.395 | 66.44 | 67.59 | 57.89 | 85.79 | 2.845 | -2.22 |
| 70 | 59.249 | 61.728 | 53.612 | 59.092 | 61.068 | 51.442 | 49.77 | 50.875 | 46.825 | 76.6 | 1.925 | -5.94 | 59.035 | 60.355 | 52.53 | 82.025 | 2.035 | -3.055 |
| 71 | 54.936 | 57.378 | 50.005 | 55.333 | 57.386 | 48.654 | 44.39 | 45.21 | 41.07 | 73.025 | 2.34 | -5.02 | 53.645 | 55.135 | 48.45 | 79.11 | 1.24 | -3.495 |
| 72 | 51.303 | 53.671 | 46.864 | 52.061 | 54.134 | 46.100 | 38.105 | 39.79 | 35.735 | 69.325 | -0.85 | -4.22 | 46.185 | 47.355 | 42.685 | 74.405 | 1.495 | -4.68 |
| 73 | 42.831 | 44.911 | 39.265 | 44.096 | 46.078 | 39.492 | 28.61 | 30.69 | 26.67 | 62.245 | -3.775 | -2.36 | 41.52 | 42.705 | 39.425 | 71.34 | 1.05 | -5.765 |
| 74 | 35.545 | 37.299 | 32.527 | 36.926 | 38.707 | 33.187 | 18.525 | 19.77 | 19.285 | 51.57 | -2.755 | -6.705 | 34.81 | 35.785 | 32.76 | 66.35 | 1.045 | -5.02 |
| 75 | 27.353 | 28.731 | 24.867 | 28.579 | 30.045 | 25.576 | 11.265 | 12.83 | 11.215 | 42.505 | -7.73 | -1.97 | 25.165 | 25.88 | 23.555 | 57.88 | 0.935 | -4.285 |
| 76 | 20.222 | 21.334 | 18.247 | 21.129 | 22.297 | 18.680 | 7.215 | 8.805 | 8.275 | 35.605 | -11.76 | -3.955 | 16.645 | 17.805 | 15.51 | 49.235 | -2.885 | -2.06 |
| 77 | 13.383 | 14.377 | 12.069 | 13.887 | 14.820 | 12.062 | 4.235 | 5.635 | 4.375 | 28.475 | -15.28 | 1.52 | 11.605 | 12.78 | 10.865 | 42.425 | -5.045 | -0.995 |
| 78 | 7.246 | 8.353 | 6.808 | 7.389 | 8.249 | 6.439 | 2.21 | 3.05 | 1.705 | 20.26 | -14.275 | 7.62 | 6.485 | 7.005 | 5.835 | 31.78 | -2.775 | -0.27 |
| 79 | 9.767 | 9.038 | 14.286 | 8.971 | 7.910 | 14.245 | 4.105 | 3.345 | 9.205 | 21.375 | 13.435 | -31.845 | 9.42 | 9.61 | 14.215 | 37.095 | 1.3 | -19.71 |
| 80 | 14.867 | 16.916 | 39.035 | 26.019 | 34.526 | 53.355 | 9.845 | 11.425 | 27.84 | 40.285 | -8.91 | -42.205 | 17.835 | 24.71 | 42.655 | 56.79 | -28.865 | -35.03 |
| 81 | 13.673 | 18.515 | 25.188 | 20.120 | 28.401 | 31.961 | 6.84 | 10.92 | 15.285 | 39.45 | -32.05 | -18.41 | 11.265 | 20.2 | 23.055 | 52.055 | -48.95 | -13.425 |
| 82 | 15.908 | 26.668 | 34.080 | 44.424 | 68.925 | 56.826 | 9.825 | 18.345 | 19.775 | 49.915 | -50.57 | -10.6 | 17.1 | 25.905 | 33.315 | 57.945 | -37.815 | -20.34 |
| 83 | 7.542 | 15.189 | 7.760 | 12.849 | 23.485 | 10.081 | 4.305 | 10.46 | 2.925 | 38.65 | -58.205 | 28.495 | 6.45 | 15.52 | 5.29 | 46.34 | -65.725 | 27.445 |
| 84 | 36.461 | 46.968 | 4.396 | 42.209 | 53.219 | 6.758 | 25.28 | 36.16 | 4.24 | 66.64 | -36.195 | 68.135 | 42.86 | 54.165 | 5.175 | 78.555 | -25.98 | 83.565 |
| 85 | 19.012 | 19.312 | 15.466 | 19.672 | 19.954 | 15.606 | 6.97 | 8.175 | 7.35 | 34.355 | -8.74 | -2.52 | 17.1 | 17.53 | 13.315 | 48.88 | 1.1 | 3.035 |
| 86 | 29.202 | 31.844 | 4.339 | 31.326 | 34.284 | 4.793 | 19.355 | 22.51 | 3.305 | 54.565 | -11.4 | 53.23 | 32.885 | 35.71 | 5.25 | 66.29 | -5.375 | 62.04 |
| 87 | 48.428 | 49.175 | 5.134 | 53.703 | 57.906 | 8.427 | 40.53 | 41.67 | 3.935 | 70.64 | 1.1 | 76.85 | 46.02 | 46.875 | 4.485 | 74.105 | 2.36 | 79.605 |
| 88 | 17.516 | 11.389 | 5.948 | 17.895 | 11.435 | 4.250 | 11.43 | 7.19 | 1.6 | 32.24 | 37.715 | 29.44 | 19.835 | 12.7 | 5.02 | 42.29 | 43.85 | 21.84 |
| 89 | 25.639 | 13.008 | 10.798 | 29.810 | 14.906 | 11.715 | 21.48 | 11.77 | 6.015 | 40.855 | 58.04 | 14.465 | 27.765 | 16.11 | 12.575 | 47.115 | 58.12 | 2.015 |
| 90 | 18.161 | 10.814 | 13.038 | 19.306 | 11.645 | 13.172 | 11.695 | 6.98 | 7.035 | 31.75 | 41.65 | -5.72 | 21.04 | 13.225 | 10.9 | 43.09 | 46.295 | 0.015 |
| 91 | 19.122 | 10.964 | 18.911 | 21.134 | 12.473 | 21.179 | 12.74 | 7.135 | 13.495 | 32.115 | 47.255 | -26.435 | 21.98 | 13.53 | 14.58 | 43.55 | 48.765 | -9.565 |
| 92 | 21.157 | 19.741 | 25.944 | 21.884 | 20.640 | 27.301 | 8.66 | 8.23 | 15.875 | 34.465 | 6.41 | -28.465 | 16.71 | 16.965 | 21.365 | 48.19 | 1.975 | -16.755 |
| 93 | 13.011 | 13.621 | 23.914 | 13.603 | 14.731 | 26.743 | 6.725 | 6.675 | 17.96 | 31.05 | 3.01 | -39.19 | 11.98 | 17.265 | 27.875 | 48.59 | -28.91 | -27.94 |
| 94 | 31.873 | 36.577 | 42.496 | 40.897 | 48.143 | 48.604 | 14.22 | 20.3 | 25.995 | 52.175 | -29.67 | -18.565 | 26.09 | 31.445 | 35.905 | 62.87 | -16.63 | -15.57 |
| 95 | 11.317 | 20.744 | 17.997 | 23.720 | 39.556 | 26.979 | 6.78 | 14.99 | 10.27 | 45.62 | -59.22 | 6.38 | 9.55 | 19.41 | 15.56 | 51.155 | -58.2 | 1.1 |
| 96 | 26.331 | 33.678 | 20.786 | 31.283 | 39.095 | 23.168 | 10.325 | 19.055 | 10.245 | 50.75 | -50.295 | 15.305 | 22.93 | 28.835 | 19.83 | 60.615 | -20.525 | 7.745 |
| 97 | 21.402 | 29.737 | 7.212 | 26.350 | 35.221 | 8.646 | 9.715 | 20.28 | 3.8 | 52.155 | -61.095 | 45.81 | 23.445 | 35.27 | 15.13 | 65.955 | -41.215 | 27.675 |
| 98 | 48.459 | 52.764 | 21.677 | 48.224 | 52.098 | 22.529 | 35.42 | 41.12 | 11.515 | 70.26 | -13.705 | 44.97 | 42.595 | 44.36 | 18.685 | 72.45 | -0.5 | 30.605 |
| 99 | 30.025 | 25.852 | 4.358 | 31.745 | 27.969 | 3.607 | 21.62 | 16.97 | 2.48 | 48.225 | 26.935 | 48.53 | 29.135 | 24.88 | 3.215 | 56.95 | 21.065 | 57.965 |
| 100 | 33.468 | 29.105 | 14.677 | 34.539 | 30.431 | 14.989 | 22.645 | 17.83 | 7.52 | 49.29 | 27.06 | 22.555 | 30.575 | 25.71 | 13.485 | 57.74 | 23.055 | 17.81 |
| 101 | 20.731 | 11.170 | 7.507 | 21.860 | 11.052 | 5.718 | 16.56 | 9.395 | 2.785 | 36.74 | 50.6 | 26.32 | 24.455 | 13.34 | 7.505 | 43.27 | 61.005 | 12.265 |
| 102 | 35.448 | 30.186 | 22.885 | 36.556 | 31.612 | 23.897 | 23.33 | 18.305 | 11.845 | 49.86 | 27.685 | 8.83 | 32.03 | 26.325 | 18.65 | 58.34 | 25.845 | 6.335 |
| 103 | 36.684 | 30.880 | 28.518 | 38.056 | 32.694 | 30.078 | 26.1 | 19.69 | 18.825 | 51.49 | 32.55 | -5.875 | 33.27 | 26.825 | 23.665 | 58.805 | 28.24 | -2.915 |
| 104 | 13.337 | 9.003 | 16.097 | 13.575 | 9.111 | 16.784 | 7.275 | 4.395 | 12.09 | 24.93 | 34.835 | -34.875 | 15.455 | 12.075 | 17.075 | 41.325 | 24.46 | -19.46 |

Table B-2 (CONTINUED)

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 105 | 11.689 | 14.050 | 14.132 | 12.339 | 14.938 | 14.662 | 3.97 | 5.895 | 6.625 | 29.15 | -21.935 | -8.42 | 10.05 | 14.53 | 13.54 | 44.965 | -27.54 | -4.36 |
| 106 | 43.403 | 47.577 | 35.955 | 44.751 | 48.296 | 36.182 | 24.995 | 29.375 | 20.65 | 61.105 | -13.565 | 6.9 | 38.475 | 41.775 | 30.55 | 70.705 | -5.68 | 5.885 |
| 107 | 23.381 | 27.553 | 18.831 | 25.756 | 30.092 | 19.901 | 7.965 | 12.44 | 8.435 | 41.9 | -31.805 | 6.29 | 20.26 | 24.11 | 16.775 | 56.155 | -13.98 | 6.835 |
| 108 | 10.052 | 13.160 | 9.089 | 11.070 | 14.355 | 9.212 | 3.085 | 5.65 | 2.195 | 28.51 | -33.115 | 17.02 | 8.485 | 12.68 | 8.475 | 42.25 | -28.775 | 6.78 |
| 109 | 55.034 | 56.830 | 47.070 | 54.236 | 55.563 | 45.543 | 42.01 | 44.12 | 36.335 | 72.31 | -1.595 | 0.085 | 51.035 | 51.51 | 42.65 | 76.975 | 3.665 | -0.215 |
| 110 | 52.629 | 55.404 | 37.370 | 51.066 | 52.984 | 36.415 | 37.195 | 40.075 | 23.01 | 69.525 | -4.645 | 16.775 | 46.555 | 47.39 | 31.02 | 74.425 | 2.435 | 11.565 |
| 111 | 34.560 | 36.721 | 19.521 | 35.090 | 36.967 | 19.816 | 18.5 | 21.18 | 9.045 | 53.145 | -9.645 | 23.505 | 35.735 | 37.07 | 20.02 | 67.315 | -0.025 | 18.915 |
| 112 | 17.244 | 18.174 | 9.477 | 18.194 | 18.968 | 9.494 | 5.845 | 7.48 | 2.305 | 32.875 | -14.265 | 23.595 | 15.31 | 16.25 | 8.955 | 47.27 | -2.05 | 13.7 |
| 113 | 45.959 | 45.678 | 31.795 | 45.176 | 44.831 | 31.709 | 30.275 | 30.16 | 16.28 | 61.795 | 4.53 | 17.675 | 41.155 | 39.4 | 26.945 | 69.01 | 9.925 | 8.895 |
| 114 | 13.477 | 11.470 | 8.361 | 14.039 | 12.025 | 8.022 | 4.65 | 4.18 | 1.805 | 24.265 | 8.505 | 13.5 | 12.09 | 10.635 | 7.065 | 38.89 | 13.4 | 6.595 |
| 115 | 48.063 | 46.612 | 40.334 | 47.672 | 46.485 | 40.126 | 35.005 | 33.655 | 26.7 | 64.69 | 8.89 | 1.795 | 44.415 | 41.175 | 37.21 | 70.295 | 14.19 | -4.6 |
| 116 | 29.293 | 25.964 | 22.629 | 29.902 | 26.767 | 23.141 | 17.28 | 14.635 | 12.195 | 45.135 | 18.395 | -0.34 | 28.925 | 25.245 | 21.385 | 57.295 | 18.72 | -1.135 |
| 117 | 14.191 | 11.586 | 11.529 | 14.615 | 12.094 | 11.305 | 5.845 | 4.57 | 6.025 | 25.465 | 17.725 | -12.105 | 13.18 | 11.115 | 9.38 | 39.755 | 17.185 | -0.755 |
| 118 | 6.059 | 7.269 | 6.013 | 6.101 | 7.023 | 5.584 | 1.94 | 2.76 | 1.6 | 19.06 | -15.07 | 6.695 | 5.24 | 5.69 | 4.54 | 28.585 | -2.93 | 0.83 |
| 119 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.6 | 1.93 | 1.345 | 15.105 | -6.63 | 2.905 | 2.015 | 2.09 | 1.75 | 15.95 | -0.09 | -0.29 |
| 120 | 10.522 | 11.792 | 10.142 | 10.827 | 11.986 | 9.984 | 3.155 | 4.495 | 3.155 | 25.245 | -17.89 | 3.75 | 9.51 | 10.805 | 9 | 39.205 | -7.105 | -0.325 |
| 121 | 7.359 | 8.598 | 7.356 | 7.425 | 8.433 | 6.969 | 2.22 | 3.17 | 1.71 | 20.72 | -15.99 | 8.375 | 6.81 | 7.58 | 6.205 | 33.03 | -4.89 | 0.19 |
| 122 | 4.382 | 5.702 | 4.662 | 4.342 | 5.307 | 4.197 | 1.795 | 2.38 | 1.52 | 17.365 | -11.29 | 4.725 | 3.355 | 3.625 | 2.88 | 22.38 | -2.17 | 0.77 |
| 123 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.63 | 1.965 | 1.395 | 15.315 | -6.715 | 2.665 | 2.02 | 2.105 | 1.76 | 16.015 | -0.125 | -0.205 |
| 124 | 4.806 | 6.181 | 5.330 | 4.689 | 5.731 | 4.817 | 1.95 | 2.59 | 1.59 | 18.315 | -11.685 | 5.54 | 4.485 | 4.97 | 4.04 | 26.615 | -3.955 | 0.34 |
| 125 | 3.124 | 4.634 | 3.810 | 2.981 | 4.079 | 3.308 | 1.745 | 2.18 | 1.475 | 16.41 | -8.4 | 3.605 | 2.665 | 2.855 | 2.29 | 19.44 | -1.555 | 0.53 |
| 126 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.665 | 1.975 | 1.375 | 15.37 | -6 | 2.96 | 1.98 | 2.06 | 1.715 | 15.795 | -0.14 | -0.2 |
| 127 | 26.095 | 29.046 | 28.771 | 29.074 | 32.636 | 30.858 | 10.305 | 13.73 | 15.045 | 43.845 | -20.705 | -10.24 | 23.195 | 26.525 | 25.605 | 58.495 | -10.275 | -6.93 |
| 128 | 45.900 | 48.938 | 45.776 | 48.780 | 51.945 | 46.394 | 32.205 | 34.615 | 35.21 | 65.45 | -4.17 | -10.15 | 40.395 | 42.43 | 40.11 | 71.16 | -1.6 | -6.985 |
| 129 | 9.470 | 9.473 | 11.261 | 9.169 | 8.974 | 10.941 | 3.71 | 3.705 | 6.135 | 22.655 | 2.205 | -17.45 | 8.54 | 8.9 | 9.975 | 35.765 | -0.415 | -9.6 |
| 130 | 39.496 | 39.525 | 38.452 | 40.697 | 41.029 | 39.029 | 25.35 | 25.335 | 25.585 | 57.4 | 3.905 | -8.83 | 35.65 | 34.86 | 35.335 | 65.63 | 6.955 | -10.01 |
| 131 | 33.310 | 34.976 | 30.934 | 34.771 | 36.519 | 31.715 | 14.79 | 17.035 | 15.345 | 48.305 | -9.54 | -3.29 | 33 | 34.375 | 30.375 | 65.25 | -0.515 | -3.255 |
| 132 | 21.257 | 22.425 | 19.632 | 22.245 | 23.495 | 20.172 | 7.4 | 9.065 | 9.19 | 36.11 | -12.115 | -6.395 | 17.875 | 19.345 | 16.73 | 51.065 | -4.095 | -1.825 |
| 133 | 10.694 | 11.704 | 9.721 | 11.034 | 11.911 | 9.535 | 3.025 | 4.24 | 2.61 | 24.46 | -16.715 | 6.47 | 9.685 | 10.755 | 8.93 | 39.12 | -5.35 | -0.195 |
| 134 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.64 | 1.99 | 1.43 | 15.435 | -6.945 | 2.4 | 2.04 | 2.125 | 1.78 | 16.1 | -0.08 | -0.335 |
| 135 | 37.945 | 40.001 | 35.309 | 39.528 | 41.601 | 35.966 | 19.825 | 22.3 | 21.4 | 54.345 | -8.09 | -6.28 | 37.7 | 39.37 | 36.535 | 69 | -0.82 | -5.88 |
| 136 | 33.266 | 35.100 | 30.942 | 34.811 | 36.726 | 31.761 | 15.545 | 17.77 | 16.445 | 49.215 | -8.955 | -4.405 | 33.345 | 34.78 | 32.465 | 65.555 | -0.645 | -5.935 |
| 137 | 24.319 | 25.749 | 22.547 | 25.537 | 27.079 | 23.264 | 9.42 | 11.385 | 10.97 | 40.215 | -12.02 | -5.17 | 22.775 | 24.185 | 21.785 | 56.235 | -2.42 | -3.715 |
| 138 | 15.949 | 17.069 | 14.704 | 16.627 | 17.756 | 14.915 | 5.675 | 7.17 | 7.255 | 32.19 | -13.235 | -5.855 | 13.31 | 15.01 | 12.85 | 45.61 | -7.305 | -1.36 |
| 139 | 8.366 | 9.430 | 7.740 | 8.570 | 9.427 | 7.422 | 2.495 | 3.465 | 1.785 | 21.81 | -15.09 | 9.48 | 7.87 | 8.8 | 7.195 | 35.51 | -5.545 | 0.22 |
| 140 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.705 | 2.02 | 1.44 | 15.6 | -6.045 | 2.62 | 2 | 2.08 | 1.745 | 15.905 | -0.08 | -0.305 |
| 141 | 21.842 | 23.393 | 20.404 | 23.017 | 24.685 | 21.071 | 8.16 | 10.275 | 10.08 | 38.325 | -14.66 | -5.57 | 19.89 | 21.135 | 18.26 | 53.075 | -2.405 | -1.845 |
| 142 | 16.449 | 17.696 | 15.364 | 17.194 | 18.475 | 15.649 | 6.405 | 7.985 | 8.085 | 33.955 | -12.795 | -6.09 | 13.77 | 15.125 | 13.215 | 45.775 | -5.085 | -2.065 |
| 143 | 11.005 | 12.173 | 10.259 | 11.362 | 12.421 | 10.117 | 3.665 | 5.125 | 3.63 | 27.09 | -17.615 | 3.67 | 10.26 | 11.305 | 9.515 | 40.085 | -4.87 | -0.635 |
| 144 | 58.952 | 61.423 | 54.049 | 59.107 | 61.158 | 51.990 | 46.295 | 48.155 | 43.28 | 74.925 | -0.385 | -4.545 | 58.575 | 59.51 | 51.575 | 81.55 | 2.91 | -2.805 |
| 145 | 42.780 | 45.022 | 39.964 | 44.326 | 46.513 | 40.305 | 26.5 | 29.005 | 25.07 | 60.78 | -5.875 | -2.085 | 40.265 | 41.93 | 38.69 | 70.805 | -0.495 | -5.705 |
| 146 | 28.066 | 29.958 | 26.348 | 29.633 | 31.661 | 27.269 | 10.885 | 13.415 | 12.01 | 43.385 | -14.32 | -2.83 | 28.405 | 28.875 | 24.99 | 60.645 | 2.24 | -2.15 |
| 147 | 17.350 | 18.902 | 16.865 | 18.269 | 19.920 | 17.348 | 5.845 | 7.665 | 7.85 | 33.28 | -16.01 | -6.35 | 13.08 | 14.775 | 12.76 | 45.26 | -7.405 | -1.65 |
| 148 | 10.133 | 11.470 | 10.474 | 10.329 | 11.560 | 10.314 | 3.05 | 4.31 | 3.51 | 24.67 | -17.165 | 0.295 | 8.5 | 10.21 | 9.33 | 38.165 | -11.195 | -3.28 |
| 149 | 60.246 | 62.724 | 54.425 | 59.940 | 61.890 | 52.046 | 48.005 | 49.88 | 44.54 | 75.995 | -0.24 | -4.255 | 60.545 | 61.505 | 53.12 | 82.635 | 2.955 | -2.63 |
| 150 | 52.622 | 55.021 | 48.014 | 53.259 | 55.329 | 47.048 | 38.62 | 40.325 | 36.015 | 69.7 | -0.84 | -3.97 | 48.44 | 49.9 | 43.71 | 75.99 | 0.91 | -3.22 |
| 151 | 38.052 | 39.922 | 34.859 | 39.423 | 41.283 | 35.413 | 20.505 | 22.785 | 20.21 | 54.85 | -6.93 | -2.995 | 36.365 | 37.74 | 34.24 | 67.815 | -0.065 | -4.675 |
| 152 | 24.442 | 25.700 | 22.152 | 25.555 | 26.898 | 22.780 | 9.63 | 11.265 | 10.325 | 40.015 | -9.49 | -3.465 | 21.62 | 23 | 19.965 | 55.025 | -2.58 | -2.11 |
| 153 | 12.145 | 13.141 | 10.980 | 12.573 | 13.476 | 10.889 | 3.96 | 5.315 | 3.82 | 27.61 | -15.43 | 3.38 | 10.215 | 11.295 | 9.365 | 39.975 | -5.11 | -0.205 |
| 154 | 1.553 | 3.110 | 2.371 | 1.483 | 2.558 | 2.031 | 1.73 | 2.05 | 1.425 | 15.755 | -5.94 | 3.085 | 2.055 | 2.13 | 1.785 | 16.145 | -0.02 | -0.275 |
| 155 | 52.579 | 54.993 | 48.480 | 53.403 | 55.534 | 47.568 | 40.305 | 42.625 | 38.145 | 71.3 | -2.45 | -4.145 | 48.46 | 49.42 | 44.77 | 75.705 | 2.21 | -5.015 |
| 156 | 46.011 | 48.228 | 42.667 | 47.293 | 49.385 | 42.639 | 33.01 | 35.215 | 30.805 | 65.92 | -3.32 | -2.79 | 42.545 | 43.325 | 39.025 | 71.765 | 2.335 | -4.51 |
| 157 | 6.799 | 13.617 | 7.106 | 10.806 | 19.975 | 8.676 | 3.47 | 7.98 | 2.605 | 33.94 | -50.155 | 22.905 | 6.59 | 14.29 | 5.79 | 44.635 | -56.965 | 22.085 |

Table B-2 (CONTINUED)



| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 158 | 6.358 | 6.107 | 10.977 | 5.056 | 4.359 | 10.381 | 2.795 | 2.46 | 5.955 | 17.74 | 8.2 | -25.115 | 8.52 | 8.665 | 12.55 | 35.305 | 1.45 | -18.265 |
| 159 | 42.686 | 41.345 | 25.574 | 42.429 | 41.237 | 25.953 | 25.35 | 23.415 | 11.565 | 55.5 | 12.13 | 19.38 | 36.525 | 33.76 | 20.585 | 64.75 | 13.63 | 13.33 |
| 160 | 37.887 | 43.804 | 32.023 | 41.184 | 46.701 | 33.410 | 17.26 | 23.88 | 16.155 | 55.96 | -28.41 | 7.93 | 33.4 | 37.84 | 27.88 | 67.885 | -10.475 | 5.32 |
| 161 | 32.242 | 31.491 | 36.029 | 34.067 | 33.886 | 37.581 | 15.6 | 15.115 | 21.88 | 45.79 | 6.095 | -21.955 | 27.095 | 25.955 | 30.8 | 57.97 | 8.55 | -16.455 |
| 162 | 19.205 | 10.043 | 3.701 | 19.423 | 8.922 | 0.231 | 16.39 | 9.37 | 1.57 | 36.69 | 49.885 | 37.455 | 23.145 | 12.755 | 3.85 | 42.39 | 59.05 | 28.67 |
| 163 | 9.189 | 18.798 | 8.814 | 17.865 | 31.943 | 12.956 | 5.335 | 13.84 | 3.845 | 43.995 | -68.075 | 31.455 | 7.36 | 17.63 | 7.27 | 49.04 | -68.255 | 23.125 |
| 164 | 7.797 | 6.757 | 14.487 | 6.243 | 4.582 | 14.495 | 4.61 | 3.05 | 11.99 | 20.24 | 25.32 | -42.675 | 9.68 | 9.47 | 16.755 | 36.865 | 4.465 | -26.4 |
| 165 | 45.812 | 51.953 | 5.588 | 50.189 | 58.329 | 8.648 | 37.605 | 46.195 | 4.515 | 73.675 | -21.205 | 78.675 | 55.41 | 63.455 | 5.09 | 83.68 | -13.97 | 92.835 |
| 166 | 21.704 | 11.893 | 14.384 | 24.090 | 13.262 | 15.513 | 16.02 | 9.125 | 7.595 | 36.22 | 49.77 | -0.275 | 24.635 | 13.265 | 9.77 | 43.155 | 62.265 | 3.815 |
| 167 | 13.160 | 18.598 | 41.569 | 38.499 | 58.304 | 67.181 | 12.14 | 17.575 | 30.29 | 48.97 | -29.465 | -31.195 | 19.455 | 26.53 | 44.01 | 58.53 | -28.015 | -33.715 |
| 168 | 71.187 | 73.370 | 62.676 | 68.666 | 70.077 | 57.571 | 65.09 | 66.34 | 58.925 | 85.17 | 2.54 | -4.355 | 73.61 | 76.195 | 64.11 | 89.95 | 0.295 | -1.215 |
| 169 | 67.552 | 69.898 | 60.085 | 65.893 | 67.537 | 55.973 | 60.615 | 61.695 | 55.61 | 82.75 | 2.67 | -5.105 | 71.52 | 73.645 | 62.015 | 88.75 | 1.095 | -1.25 |
| 170 | 15.104 | 14.777 | 9.706 | 15.751 | 15.309 | 9.575 | 4.46 | 5.165 | 2.17 | 27.2 | -6.73 | 14.995 | 12.065 | 12.065 | 8.59 | 41.275 | 3.085 | 4.725 |
| 171 | 13.365 | 15.482 | 11.559 | 14.254 | 16.402 | 11.709 | 3.74 | 5.845 | 3.465 | 29.02 | -24.825 | 8.125 | 10.995 | 13.095 | 10.725 | 42.88 | -11.4 | 0.24 |
| 172 | 11.944 | 12.374 | 12.337 | 12.078 | 12.400 | 12.233 | 3.995 | 4.585 | 5.995 | 25.53 | -6.03 | -11.875 | 10.295 | 11.315 | 11.005 | 40.075 | -4.61 | -5.47 |
| 173 | 8.772 | 6.659 | 4.348 | 9.292 | 7.246 | 3.846 | 3.185 | 2.82 | 1.45 | 19.315 | 8.165 | 8.89 | 10.3 | 9.33 | 5.39 | 36.59 | 10.535 | 10.125 |
| 174 | 3.901 | 7.496 | 4.620 | 4.251 | 8.016 | 4.204 | 2.31 | 4.19 | 1.965 | 24.29 | -29.535 | 11.93 | 7.595 | 11.235 | 6.595 | 39.945 | -26.91 | 10.34 |
| 175 | 4.127 | 4.835 | 6.360 | 3.459 | 3.874 | 5.544 | 1.695 | 2.085 | 1.41 | 15.93 | -7.61 | 3.475 | 6.935 | 7.12 | 7.73 | 32.05 | 0.71 | -7.97 |
| 176 | 15.651 | 17.068 | 4.036 | 16.910 | 17.996 | 4.002 | 6.2 | 8.325 | 2.465 | 34.65 | -18.03 | 25.24 | 17.84 | 20.01 | 7.67 | 51.82 | -7.52 | 26.345 |
| 177 | 9.723 | 7.543 | 7.324 | 10.116 | 8.144 | 6.793 | 3.27 | 2.865 | 1.58 | 19.475 | 8.935 | 7.705 | 11.315 | 9.94 | 8.175 | 37.705 | 13.2 | 0.07 |
| 178 | 5.315 | 8.238 | 12.741 | 4.850 | 8.393 | 13.783 | 3.9 | 5.325 | 7.915 | 27.645 | -16.505 | -16.325 | 10.61 | 15.845 | 17.075 | 46.745 | -30.95 | -10.095 |
| 179 | 30.665 | 29.526 | 18.512 | 31.051 | 29.938 | 18.649 | 17.155 | 16.06 | 8.96 | 47.06 | 9.44 | 13.305 | 29.635 | 27.715 | 17.895 | 59.595 | 11.485 | 10.21 |
| 180 | 27.621 | 31.802 | 23.101 | 30.065 | 34.306 | 24.279 | 12.115 | 17.295 | 11.46 | 48.63 | -28.13 | 7.85 | 25.285 | 28.21 | 22.515 | 60.065 | -7.865 | 1.435 |
| 181 | 23.594 | 23.275 | 26.119 | 24.604 | 24.519 | 27.230 | 10.375 | 10.88 | 15.43 | 39.38 | -0.905 | -18.9 | 19.46 | 19.81 | 21.985 | 51.595 | 1.82 | -12.125 |
| 182 | 15.055 | 8.811 | 4.479 | 15.031 | 8.390 | 2.214 | 10.42 | 6.47 | 1.665 | 30.57 | 37.43 | 25.86 | 18.76 | 12.44 | 4.77 | 41.905 | 40.13 | 22.52 |
| 183 | 26.341 | 13.284 | 14.026 | 31.554 | 16.249 | 16.804 | 20.255 | 11.095 | 7.375 | 39.74 | 56.96 | 6.685 | 28.49 | 16.215 | 15.445 | 47.255 | 60.375 | -5.35 |
| 184 | 43.526 | 35.712 | 28.560 | 46.420 | 39.237 | 31.563 | 28.03 | 20.495 | 16.315 | 52.39 | 36.425 | 1.395 | 42.05 | 32.615 | 28.17 | 63.835 | 35.025 | -2.125 |
| 185 | 58.900 | 55.764 | 42.803 | 57.721 | 55.301 | 43.125 | 41.165 | 42.02 | 27.8 | 70.885 | 1.99 | 10.63 | 51.785 | 47.125 | 40.59 | 74.26 | 17.355 | -2.26 |
| 186 | 65.599 | 65.930 | 49.984 | 61.720 | 61.721 | 47.305 | 56.68 | 61.13 | 43 | 82.45 | -5.495 | 8.775 | 58.775 | 57.08 | 47.405 | 80.22 | 9.2 | -0.38 |
| 187 | 68.569 | 70.317 | 52.698 | 63.813 | 64.579 | 48.766 | 63.275 | 65.26 | 54.385 | 84.62 | 0.8 | -0.59 | 64.42 | 63.945 | 50.605 | 83.935 | 6.35 | 2.375 |
| 188 | 72.159 | 74.902 | 55.368 | 66.451 | 67.578 | 50.178 | 58.535 | 58.565 | 56.225 | 81.05 | 5.045 | -8.68 | 67.01 | 67.61 | 52.06 | 85.81 | 4.06 | 3.99 |
| 189 | 26.523 | 13.319 | 15.522 | 32.150 | 16.737 | 19.106 | 20.76 | 11.34 | 7.995 | 40.145 | 57.69 | 4.93 | 28.895 | 16.365 | 16.715 | 47.445 | 61.12 | -8.065 |
| 190 | 44.179 | 35.913 | 31.870 | 47.395 | 39.861 | 35.325 | 27.71 | 20.18 | 19.295 | 52.045 | 36.675 | -5.91 | 42.505 | 32.835 | 30.625 | 64.025 | 35.59 | -5.76 |
| 191 | 57.893 | 54.832 | 46.488 | 56.804 | 54.461 | 46.187 | 42.905 | 44.22 | 31.92 | 72.375 | 0.82 | 6.62 | 53.545 | 48.675 | 47.19 | 75.245 | 17.67 | -8.705 |
| 192 | 66.139 | 65.857 | 54.666 | 62.897 | 62.586 | 51.526 | 58.66 | 62 21 | 48.66 | 83.025 | -3.165 | 2.995 | 63.265 | 60.73 | 55.585 | 82.225 | 11.065 | -5.975 |
| 193 | 70.338 | 71.449 | 58.444 | 66.197 | 66.671 | 53.743 | 68.095 | 70.47 | 60.185 | 87.23 | 0.315 | -2.07 | 68.83 | 68.54 | 59.055 | 86.27 | 6.02 | -2.58 |
| 194 | 73.659 | 75.800 | 60.611 | 68.776 | 69.671 | 54.744 | 60.97 | 62.185 | 58.43 | 83.015 | 2.38 | -7.57 | 74.025 | 77.06 | 62.61 | 90.35 | -0.575 | 0.93 |
| 195 | 26.693 | 13.325 | 17.035 | 32.756 | 17.214 | 21.438 | 21.095 | 11.4 | 9.325 | 40.25 | 58.81 | 0.295 | 29.11 | 16.47 | 17.425 | 47.58 | 61.35 | -9.475 |
| 196 | 44.718 | 36.296 | 35.164 | 48.051 | 40.498 | 38.830 | 29.685 | 21.765 | 23.21 | 53.775 | 36.87 | -10.755 | 42.905 | 32.93 | 32.76 | 64.105 | 36.46 | -8.89 |
| 197 | 59.145 | 55.560 | 51.227 | 58.509 | 55.955 | 50.715 | 45.055 | 46.695 | 35.955 | 73.995 | 0.1 | 3.525 | 53.77 | 48.22 | 51.24 | 74.96 | 19.485 | -13.82 |
| 198 | 67.802 | 67.072 | 59.620 | 65.204 | 64.822 | 55.969 | 59.65 | 63.895 | 50.63 | 83.905 | -4.6 | 2.295 | 65.545 | 62.995 | 59.49 | 83.435 | 11.035 | -7.91 |
| 199 | 71.604 | 72.341 | 62.903 | 68.431 | 68.945 | 57.809 | 68.525 | 71.205 | 59.23 | 87.585 | -0.285 | -0.5 | 73.11 | 74.895 | 63.77 | 89.345 | 1.87 | -1.93 |
| 200 | 75.780 | 77.642 | 65.685 | 71.963 | 72.994 | 59.213 | 66.515 | 67.215 | 59.96 | 85.61 | 3.815 | -4.635 | 74.51 | 77.15 | 64.815 | 90.39 | 0.245 | -1.12 |
| 201 | 24.140 | 12.613 | 14.200 | 27.772 | 14.595 | 16.019 | 18.52 | 10.38 | 7.76 | 38.52 | 53.485 | 3.04 | 27.18 | 14.875 | 13.85 | 45.465 | 62.91 | -4.335 |
| 202 | 40.034 | 33.062 | 28.471 | 42.103 | 35.650 | 30.695 | 26.095 | 19.445 | 17.53 | 51.21 | 33.75 | -3.48 | 38.65 | 30.435 | 26.765 | 62.015 | 32.36 | -2.9 |
| 203 | 52.479 | 50.568 | 41.301 | 51.485 | 49.900 | 40.991 | 39.565 | 39.3 | 28.26 | 68.965 | 5.31 | 6.555 | 48.66 | 44.81 | 39.5 | 72.76 | 15.465 | -3.42 |
| 204 | 59.927 | 60.967 | 48.334 | 57.567 | 58.140 | 46.134 | 51.54 | 54.9 | 41.83 | 78.98 | -3.62 | 4.275 | 56.37 | 55.29 | 45.605 | 79.2 | 7.71 | 0.01 |
| 205 | 63.569 | 66.080 | 51.535 | 60.770 | 62.228 | 48.378 | 57.175 | 59.255 | 50.065 | 81.43 | 0.105 | -1.355 | 62.675 | 62.485 | 49.855 | 83.165 | 5.68 | 1.89 |
| 206 | 56.842 | 50.516 | 54.432 | 58.738 | 54.342 | 55.755 | 56.155 | 56.145 | 53.545 | 79.695 | 5.065 | -8.175 | 67.225 | 68.46 | 52.035 | 86.235 | 2.7 | 4.75 |
| 207 | 24.351 | 12.662 | 15.841 | 28.391 | 15.078 | 18.469 | 18.755 | 10.36 | 8.76 | 38.475 | 54.88 | -0.79 | 27.255 | 14.945 | 14.175 | 45.56 | 62.785 | -5.045 |
| 208 | 40.627 | 33.387 | 31.572 | 42.895 | 36.274 | 34.115 | 26.335 | 19.43 | 20.685 | 51.185 | 34.82 | -10.29 | 39.255 | 30.795 | 29.695 | 62.32 | 32.945 | -7.215 |
| 209 | 53.051 | 50.661 | 45.364 | 52.486 | 50.651 | 44.990 | 40.375 | 40.345 | 32.675 | 69.715 | 4.615 | 0.9 | 48.725 | 44.86 | 44.06 | 72.8 | 15.49 | -9.165 |
| 210 | 61.475 | 62.124 | 53.804 | 59.838 | 60.336 | 51.210 | 53.955 | 57.15 | 47.155 | 80.265 | -2.905 | -0.01 | 59.365 | 57.71 | 53.425 | 80.575 | 9.09 | -6.525 |

Table B-2 (CONTINUED)



| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 211 | 65.405 | 67.349 | 56.707 | 63.273 | 64.541 | 53.088 | 60.95 | 63.585 | 55.46 | 83.75 | -0.835 | -3.225 | 67.15 | 67.2 | 57.575 | 85.605 | 5.25 | -2.225 |
| 212 | 69.053 | 72.284 | 59.812 | 66.911 | 68.906 | 55.284 | 58.315 | 57.98 | 55.39 | 80.725 | 5.905 | -8.365 | 73.765 | 76.84 | 62.175 | 90.245 | -0.665 | 1.175 |
| 213 | 24.660 | 12.707 | 17.460 | 29.201 | 15.613 | 20.951 | 18.73 | 10.24 | 10.42 | 38.27 | 55.66 | -6.775 | 27.65 | 15.22 | 15.16 | 45.935 | 62.755 | -6.915 |
| 214 | 41.207 | 33.530 | 34.416 | 43.857 | 36.920 | 37.393 | 28.74 | 21.245 | 24.515 | 53.22 | 35.64 | -14.13 | 38.72 | 30.5 | 32.28 | 62.08 | 32.315 | -11.655 |
| 215 | 54.502 | 51.438 | 49.703 | 54.480 | 52.326 | 49.368 | 42.005 | 41.91 | 35.09 | 70.805 | 4.865 | -0.745 | 49.035 | 44.61 | 47.375 | 72.635 | 17.06 | -13.425 |
| 216 | 62.752 | 62.769 | 58.254 | 61.973 | 62.336 | 55.539 | 58.225 | 62.12 | 49.78 | 82.975 | -4.015 | 1.635 | 61.675 | 60.05 | 58.225 | 81.865 | 8.97 | -9.335 |
| 217 | 66.945 | 68.283 | 62.003 | 66.069 | 67.363 | 58.192 | 61.245 | 64.165 | 54.66 | 84.05 | -1.45 | -1.86 | 72.055 | 73.94 | 63.145 | 88.895 | 1.595 | -2.1 |
| 218 | 71.368 | 74.165 | 65.433 | 70.599 | 72.799 | 60.541 | 65.495 | 66.31 | 59.275 | 85.15 | 3.53 | -4.735 | 73.915 | 76.56 | 64.165 | 90.115 | 0.195 | -0.97 |
| 219 | 22.383 | 12.092 | 15.154 | 25.192 | 13.748 | 16.775 | 15.745 | 8.985 | 7.785 | 35.96 | 49.33 | -1.47 | 25.505 | 13.635 | 11.555 | 43.705 | 63.61 | -0.92 |
| 220 | 36.684 | 30.880 | 28.518 | 38.056 | 32.694 | 30.078 | 23.495 | 17.915 | 17.64 | 49.385 | 30.455 | -6.87 | 35.23 | 28.445 | 26.095 | 60.275 | 28.64 | -4.735 |
| 221 | 48.063 | 46.612 | 40.334 | 47.672 | 46.485 | 40.126 | 33.04 | 32.19 | 26.295 | 63.5 | 7.23 | 0.445 | 46.41 | 43.11 | 40.395 | 71.625 | 14.13 | -6.545 |
| 222 | 55.034 | 56.830 | 47.070 | 54.236 | 55.563 | 45.543 | 42.84 | 45.075 | 38.435 | 72.94 | -1.84 | -1.7 | 53.21 | 53.365 | 45.295 | 78.08 | 4.565 | -1.55 |
| 223 | 58.880 | 62.167 | 50.894 | 58.265 | 60.617 | 48.736 | 46.495 | 49.115 | 43.84 | 75.52 | -2.4 | -4.21 | 58.505 | 59.73 | 49.39 | 81.685 | 2.21 | -0.14 |
| 224 | 62.505 | 67.254 | 53.476 | 62.011 | 65.212 | 50.746 | 47.965 | 48.755 | 47.78 | 75.3 | 2.64 | -9.305 | 67.025 | 71.13 | 53.045 | 87.545 | -3.41 | 5.905 |
| 225 | 22.535 | 12.119 | 16.348 | 25.607 | 14.042 | 18.508 | 15.745 | 8.885 | 9.2 | 35.765 | 50.16 | -7.01 | 25.815 | 13.785 | 12.17 | 43.915 | 63.985 | -2.365 |
| 226 | 37.009 | 30.630 | 31.110 | 38.758 | 32.907 | 33.128 | 23.265 | 17.525 | 20.845 | 48.915 | 31.455 | -14.525 | 36.19 | 29.06 | 29.78 | 60.825 | 29.495 | -9.925 |
| 227 | 48.956 | 47.071 | 44.500 | 49.064 | 47.697 | 44.354 | 35.9 | 34.925 | 31.45 | 65.69 | 7.59 | -4.17 | 44.685 | 42 | 42.375 | 70.86 | 12.5 | -10.4 |
| 228 | 56.213 | 57.381 | 52.217 | 56.355 | 57.521 | 50.669 | 45.21 | 47.395 | 42.945 | 74.44 | -1.39 | -4.95 | 55.76 | 55.23 | 52.725 | 79.17 | 6.335 | -8.19 |
| 229 | 60.046 | 63.000 | 55.495 | 60.547 | 62.993 | 53.312 | 48.66 | 50.735 | 47.27 | 76.52 | -0.7 | -6.605 | 63.095 | 64.43 | 57.315 | 84.185 | 2.24 | -4.405 |
| 230 | 63.914 | 68.224 | 58.760 | 64.874 | 68.217 | 55.988 | 49.805 | 50.135 | 50.47 | 76.155 | 3.97 | -10.9 | 72.805 | 75.975 | 62.925 | 89.845 | -0.93 | -0.245 |
| 231 | 22.724 | 12.121 | 17.962 | 26.165 | 14.409 | 20.863 | 16.125 | 8.95 | 11.15 | 35.89 | 51.81 | -13.175 | 25.645 | 13.71 | 12.345 | 43.81 | 63.735 | -3.055 |
| 232 | 37.390 | 30.670 | 33.670 | 39.451 | 33.359 | 36.067 | 25.3 | 18.875 | 25.03 | 50.545 | 33.275 | -19.655 | 37.155 | 29.56 | 32.33 | 61.265 | 30.815 | -13.14 |
| 233 | 49.853 | 47.387 | 48.276 | 50.585 | 48.974 | 48.320 | 38.04 | 36.705 | 36.355 | 67.055 | 8.715 | -8.995 | 45.05 | 41.64 | 45.38 | 70.62 | 14.625 | -14.535 |
| 234 | 57.872 | 58.553 | 57.341 | 59.143 | 60.377 | 55.834 | 47.6 | 50.665 | 45.185 | 76.475 | -3.425 | -4.2 | 57.345 | 56.83 | 56.8 | 80.08 | 6.325 | -10.945 |
| 235 | 61.991 | 64.325 | 61.364 | 64.012 | 66.603 | 59.210 | 50.645 | 53.095 | 48.51 | 77.93 | -1.45 | -5.61 | 68.335 | 71.49 | 63.455 | 87.72 | -1.29 | -4.42 |
| 236 | 66.037 | 70.085 | 64.794 | 69.082 | 72.980 | 62.130 | 51.8 | 53.365 | 51.855 | 78.09 | 0.905 | -9.1 | 74.07 | 76.77 | 64.66 | 90.215 | 0.105 | -1.275 |
| 237 | 18.523 | 10.930 | 15.569 | 19.990 | 12.038 | 16.559 | 10.945 | 6.64 | 9.01 | 30.97 | 39.65 | -14.61 | 22.59 | 13.9 | 14.305 | 44.085 | 49.23 | -7.93 |
| 238 | 30.316 | 26.359 | 27.774 | 31.207 | 27.558 | 28.841 | 17.1 | 13.84 | 18.415 | 44 | 22.31 | -17.885 | 31.25 | 26.765 | 28.715 | 58.75 | 21.25 | -11.795 |
| 239 | 39.496 | 39.525 | 38.452 | 40.697 | 41.029 | 39.029 | 23.75 | 23.895 | 25 | 55.98 | 3.18 | -10.235 | 38.3 | 37.51 | 38.49 | 67.655 | 6.955 | -10.88 |
| 240 | 45.900 | 48.938 | 45.776 | 48.780 | 51.945 | 46.394 | 30.905 | 33.89 | 34.925 | 64.875 | -6.42 | -10.735 | 43.915 | 45.935 | 43.81 | 73.495 | -1.11 | -7.65 |
| 241 | 48.941 | 53.710 | 48.867 | 53.202 | 57.922 | 49.711 | 33.31 | 36.495 | 39.775 | 66.9 | -6.49 | -13.9 | 47.695 | 51.73 | 47.53 | 77.11 | -5.945 | -5.875 |
| 242 | 52.599 | 58.965 | 52.405 | 58.407 | 64.509 | 53.434 | 36.76 | 39.085 | 47.255 | 68.81 | -3.01 | -19.88 | 55.36 | 62.415 | 53.39 | 83.13 | -11.74 | -2.075 |
| 243 | 18.704 | 10.938 | 17.053 | 20.371 | 12.200 | 18.575 | 11.395 | 6.575 | 11.335 | 30.83 | 43.49 | -22.475 | 22.735 | 13.96 | 15.24 | 44.175 | 49.53 | -10.145 |
| 244 | 30.479 | 26.009 | 30.296 | 31.659 | 27.573 | 31.808 | 18.38 | 14.36 | 22.34 | 44.74 | 25.925 | -24.67 | 29.97 | 25.32 | 29.705 | 57.38 | 22.385 | -15.765 |
| 245 | 40.590 | 40.074 | 42.938 | 42.535 | 42.684 | 43.935 | 26.24 | 25.55 | 31.245 | 57.605 | 6.755 | -17.8 | 36.085 | 35.115 | 38.19 | 65.835 | 7.56 | -13.62 |
| 246 | 47.226 | 49.708 | 51.233 | 51.571 | 54.855 | 52.419 | 33.7 | 36.535 | 40.48 | 66.93 | -5.255 | -14.775 | 44.87 | 46.915 | 48.97 | 74.13 | -1.045 | -12.69 |
| 247 | 50.545 | 54.926 | 54.416 | 56.594 | 61.676 | 55.847 | 36.505 | 39.64 | 45.8 | 69.21 | -5.58 | -17.465 | 51.88 | 57.825 | 56.365 | 80.64 | -9.89 | -9.535 |
| 248 | 54.544 | 60.524 | 58.578 | 62.639 | 69.312 | 60.263 | 39.145 | 41.635 | 50.04 | 70.62 | -3.145 | -19.96 | 59.48 | 64.83 | 62.505 | 84.395 | -7.115 | -9.24 |
| 249 | 19.122 | 10.964 | 18.911 | 21.134 | 12.473 | 21.179 | 12.54 | 7.005 | 14.09 | 31.81 | 47.245 | -28.545 | 22.775 | 14.03 | 15.63 | 44.27 | 49.275 | -10.945 |
| 250 | 31.007 | 25.973 | 32.745 | 32.540 | 27.983 | 34.752 | 19.91 | 15.17 | 26.715 | 45.87 | 28.86 | -30.665 | 29.905 | 25.11 | 30.76 | 57.175 | 23.005 | -17.78 |
| 251 | 41.352 | 40.256 | 47.022 | 44.220 | 44.238 | 48.597 | 27.44 | 27.36 | 33.635 | 59.305 | 4.295 | -18.47 | 36.44 | 35.24 | 40.47 | 65.935 | 8.33 | -16.475 |
| 252 | 48.729 | 50.595 | 55.884 | 54.334 | 57.679 | 57.535 | 34.79 | 38.095 | 40.605 | 68.09 | -6.51 | -12.925 | 47.205 | 49.33 | 54.78 | 75.655 | -0.985 | -16.465 |
| 253 | 52.485 | 56.154 | 60.259 | 60.387 | 65.744 | 62.271 | 38.285 | 42.395 | 45.11 | 71.145 | -8.12 | -13.305 | 54.24 | 60.19 | 60.61 | 81.94 | -9.405 | -11.61 |
| 254 | 56.097 | 61.584 | 64.867 | 67.203 | 74.807 | 67.652 | 39.21 | 43.025 | 48.24 | 71.575 | -7.055 | -16.255 | 61.58 | 66.73 | 63.08 | 85.365 | -6.335 | -8.125 |
| 255 | 13.337 | 9.003 | 16.097 | 13.575 | 9.111 | 16.784 | 6.815 | 4.215 | 11.98 | 24.37 | 32.725 | -35.525 | 17.275 | 13.37 | 19.465 | 43.31 | 26.2 | -21.32 |
| 256 | 21.157 | 19.741 | 25.944 | 21.884 | 20.640 | 27.301 | 8.985 | 8.58 | 17.465 | 35.16 | 6.19 | -30.99 | 19.575 | 19.455 | 24.84 | 51.2 | 4.12 | -18.16 |
| 257 | 27.705 | 29.449 | 36.297 | 31.842 | 34.853 | 39.797 | 11.89 | 14.24 | 22.485 | 44.575 | -12.205 | -25.245 | 25.335 | 28.175 | 34.475 | 60.035 | -7.545 | -18.42 |
| 258 | 31.873 | 36.577 | 42.496 | 40.897 | 48.143 | 48.604 | 14.72 | 20.89 | 27.465 | 52.83 | -29.45 | -19.96 | 29.115 | 34.385 | 39.05 | 65.255 | -14.86 | -15.76 |
| 259 | 33.945 | 40.277 | 46.428 | 47.008 | 57.038 | 54.803 | 16.18 | 23.465 | 31.005 | 55.545 | -32.6 | -20.98 | 33.835 | 41.825 | 43.55 | 70.745 | -21.245 | -12.075 |
| 260 | 36.759 | 44.722 | 49.736 | 53.440 | 65.884 | 59.747 | 16.65 | 24.43 | 32.38 | 56.515 | -34.14 | -21.415 | 38.22 | 46.35 | 50.205 | 73.77 | -19.655 | -14.71 |
| 261 | 13.536 | 8.990 | 17.122 | 13.792 | 9.033 | 18.094 | 7.435 | 4.405 | 14.005 | 24.96 | 36.27 | -40.12 | 17.205 | 13.385 | 20.335 | 43.32 | 25.75 | -23.13 |
| 262 | 21.604 | 19.745 | 28.505 | 22.540 | 20.931 | 30.410 | 10.745 | 9.36 | 22.485 | 36.675 | 13.565 | -38.865 | 18.67 | 18.695 | 26.3 | 50.315 | 3.35 | -22.275 |
| 263 | 27.992 | 29.293 | 39.465 | 33.008 | 36.034 | 43.936 | 13.275 | 15.28 | 26.72 | 46.02 | -9.12 | -30.43 | 23.785 | 26.67 | 34.905 | 58.66 | -8.255 | -21.425 |

Table B-2 (CONTINUED)

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 264 | 35.409 | 41.839 | 48.029 | 48.905 | 59.060 | 56.415 | 16.485 | 22.155 | 31.51 | 54.19 | -25.025 | -24.1 | 31.37 | 37.67 | 47.715 | 67.765 | -17.19 | -22.205 |
| 265 | 35.563 | 41.229 | 52.187 | 51.118 | 61.743 | 62.265 | 18.075 | 25.455 | 35.04 | 57.51 | -30.69 | -23.6 | 36.285 | 43.625 | 54.515 | 71.975 | -18.245 | -22.525 |
| 266 | 38.596 | 45.669 | 55.947 | 57.836 | 70.788 | 67.547 | 17.82 | 25.43 | 35.03 | 57.495 | -31.975 | -23.615 | 39.645 | 46.845 | 55.94 | 74.085 | -16.52 | -20.39 |
| 267 | 13.636 | 8.870 | 18.514 | 13.889 | 8.782 | 19.905 | 8.215 | 4.605 | 16.865 | 25.575 | 40.81 | -46.14 | 16.525 | 13.025 | 20.69 | 42.8 | 24.255 | -24.735 |
| 268 | 21.751 | 19.416 | 30.839 | 22.935 | 20.936 | 33.385 | 12.415 | 10.625 | 26.805 | 38.94 | 15.66 | -42.77 | 18.925 | 18.63 | 28.1 | 50.24 | 4.975 | -25.455 |
| 269 | 28.842 | 29.517 | 43.652 | 35.087 | 38.122 | 49.366 | 14.79 | 16.645 | 29.69 | 47.805 | -7.375 | -32.255 | 24.52 | 27.425 | 38.875 | 59.365 | -8.065 | -25.705 |
| 270 | 34.002 | 37.336 | 52.821 | 47.320 | 55.466 | 62.313 | 17.9 | 23.855 | 34.36 | 55.945 | -24.87 | -25.33 | 34.395 | 41.805 | 53.335 | 70.73 | -19.26 | -23.4 |
| 271 | 36.897 | 41.630 | 57.594 | 54.747 | 65.796 | 69.289 | 17.75 | 25.375 | 34.385 | 57.44 | -32.115 | -22.785 | 37 | 44.31 | 54.38 | 72.435 | -17.865 | -21.59 |
| 272 | 39.319 | 46.101 | 62.240 | 63.994 | 79.414 | 77.499 | 17.945 | 26.125 | 34.61 | 58.155 | -34.185 | -21.87 | 40.65 | 47.67 | 55.785 | 74.615 | -15.66 | -19.32 |
| 273 | 9.828 | 8.371 | 16.623 | 8.682 | 6.702 | 17.049 | 6.135 | 3.87 | 16.375 | 23.23 | 30.56 | -49.03 | 11.13 | 10.695 | 19.195 | 39.06 | 6.11 | -28.075 |
| 274 | 13.011 | 13.621 | 23.914 | 13.603 | 14.731 | 26.743 | 7.01 | 6.97 | 18.7 | 31.735 | 2.885 | -39.64 | 12.785 | 17.935 | 29.9 | 49.41 | -26.98 | -29.82 |
| 275 | 14.308 | 17.901 | 31.780 | 22.631 | 30.882 | 41.805 | 8.665 | 11.48 | 23.05 | 40.38 | -19.08 | -33.55 | 16.345 | 23.505 | 39.38 | 55.59 | -31.855 | -32.875 |
| 276 | 12.981 | 19.368 | 37.194 | 35.409 | 54.275 | 59.268 | 11.055 | 17.505 | 26.82 | 48.895 | -36.805 | -25.635 | 19.985 | 27.085 | 44.835 | 59.055 | -27.61 | -33.815 |
| 277 | 15.036 | 22.935 | 40.832 | 44.818 | 68.317 | 67.495 | 11.37 | 18.56 | 27.005 | 50.17 | -40 | -23.755 | 21.325 | 28.525 | 45.66 | 60.355 | -26.76 | -32.55 |
| 278 | 17.097 | 26.259 | 45.130 | 54.860 | 83.045 | 76.846 | 12.01 | 19.605 | 27.835 | 51.385 | -40.74 | -23.05 | 22.51 | 29.87 | 46.95 | 61.54 | -26.375 | -32.05 |
| 279 | 9.714 | 7.967 | 17.648 | 8.395 | 6.009 | 18.365 | 6.525 | 3.875 | 17.09 | 23.255 | 34.565 | -50.67 | 11.025 | 10.295 | 20.38 | 38.365 | 8.315 | -31.76 |
| 280 | 13.031 | 13.181 | 25.877 | 13.727 | 14.488 | 29.462 | 7.935 | 7.42 | 22.125 | 32.735 | 7.365 | -44.95 | 13.7 | 18.875 | 34.475 | 50.535 | -25.91 | -34.81 |
| 281 | 14.806 | 17.731 | 35.533 | 24.610 | 33.070 | 47.643 | 9.77 | 12.095 | 26.615 | 41.365 | -14.175 | -38.265 | 17.575 | 24.4 | 42.635 | 56.48 | -28.935 | -35.53 |
| 282 | 13.309 | 18.757 | 42.200 | 39.412 | 59.622 | 68.438 | 12.255 | 17.695 | 30.82 | 49.125 | -29.33 | -31.76 | 20.43 | 27.59 | 45.155 | 59.515 | -27.43 | -33.4 |
| 283 | 15.515 | 22.271 | 47.029 | 50.401 | 75.901 | 78.917 | 12.765 | 19.62 | 30.345 | 51.4 | -35.705 | -27.1 | 21.91 | 29.18 | 46.295 | 60.935 | -26.52 | -32.325 |
| 284 | 17.695 | 25.683 | 51.698 | 61.442 | 92.113 | 89.012 | 13.185 | 20.595 | 31.33 | 52.505 | -37.665 | -26.725 | 23.12 | 30.445 | 47.165 | 62.03 | -25.74 | -31.46 |
| 285 | 9.402 | 7.302 | 18.371 | 7.896 | 5.009 | 19.378 | 6.09 | 3.655 | 15.83 | 22.495 | 33.24 | -48.99 | 10.945 | 10.21 | 21.345 | 38.215 | 8.365 | -33.955 |
| 286 | 13.374 | 12.898 | 28.222 | 14.261 | 14.481 | 32.660 | 8.935 | 8.03 | 24.775 | 34.04 | 10.57 | -47.655 | 15.56 | 21.71 | 40.235 | 53.72 | -28.305 | -37.225 |
| 287 | 14.867 | 16.916 | 39.035 | 26.019 | 34.526 | 53.355 | 10.865 | 12.785 | 29.49 | 42.445 | -10.41 | -41.18 | 17.88 | 24.745 | 42.82 | 56.83 | -28.79 | -35.17 |
| 288 | 13.494 | 17.878 | 46.872 | 43.045 | 64.465 | 77.096 | 12.925 | 18.43 | 32.39 | 50.015 | -28.65 | -32.64 | 20.91 | 28.055 | 45.275 | 59.94 | -26.925 | -32.825 |
| 289 | 15.816 | 21.395 | 52.343 | 55.148 | 82.384 | 88.809 | 13.305 | 20.03 | 32.245 | 51.87 | -34.18 | -29.22 | 22.395 | 29.655 | 46.395 | 61.35 | -26.07 | -31.725 |
| 290 | 18.480 | 25.440 | 58.175 | 69.016 | 102.782 | 101.293 | 13.145 | 20.705 | 30.96 | 52.625 | -38.445 | -25.95 | 24.3 | 31.685 | 47.77 | 63.08 | -25.05 | -30.36 |
| 291 | 23.738 | 11.484 | 2.308 | 25.784 | 10.958 | -1.593 | 21.02 | 11.635 | 1.61 | 40.63 | 56.825 | 43.785 | 26.76 | 15.695 | 8.81 | 46.565 | 56.445 | 13.01 |
| 292 | 37.157 | 31.173 | 1.743 | 41.527 | 37.160 | 1.410 | 28.075 | 20.69 | 2.54 | 52.605 | 35.685 | 55.615 | 35.705 | 30.22 | 3.435 | 61.84 | 23.54 | 64.89 |
| 293 | 48.428 | 49.175 | 5.134 | 53.703 | 57.906 | 8.427 | 39.62 | 40.94 | 3.935 | 70.135 | 0.455 | 75.97 | 46.17 | 46.93 | 4.45 | 74.145 | 2.61 | 79.85 |
| 294 | 55.254 | 60.081 | 6.878 | 61.301 | 70.293 | 12.172 | 43.175 | 48.195 | 4.32 | 74.945 | -9.48 | 81.975 | 57.015 | 65.815 | 5.24 | 84.905 | -15.255 | 94.18 |
| 295 | 58.035 | 64.805 | 7.666 | 64.393 | 75.440 | 13.723 | 46.19 | 50.965 | 4.4 | 76.655 | -8.15 | 84.485 | 56.82 | 65.615 | 5.27 | 84.8 | -15.29 | 93.85 |
| 296 | 61.050 | 69.492 | 8.518 | 67.811 | 80.689 | 15.345 | 44.325 | 49.275 | 4.46 | 75.62 | -9.025 | 82.35 | 56.855 | 65.63 | 5.26 | 84.805 | -15.245 | 93.915 |
| 297 | 24.713 | 12.370 | 6.188 | 27.702 | 12.945 | 4.545 | 21.265 | 11.675 | 2.645 | 40.69 | 57.725 | 34.175 | 27.185 | 15.77 | 10.835 | 46.675 | 57.725 | 6.39 |
| 298 | 40.512 | 34.172 | 13.416 | 43.442 | 37.831 | 14.764 | 27.54 | 20.6 | 5.94 | 52.515 | 33.955 | 34.92 | 38.045 | 30.365 | 14.885 | 61.965 | 30.67 | 21.41 |
| 299 | 52.129 | 51.912 | 19.162 | 53.176 | 54.166 | 21.379 | 38.815 | 40.7 | 10.64 | 69.965 | -1.345 | 47.165 | 46.065 | 43.485 | 18.675 | 71.88 | 12.07 | 29.635 |
| 300 | 59.020 | 62.575 | 21.895 | 59.099 | 63.628 | 24.467 | 48.335 | 57.315 | 12.625 | 80.36 | -18.135 | 59.145 | 51.475 | 51.815 | 21.6 | 77.165 | 4.02 | 32.685 |
| 301 | 62.206 | 67.630 | 23.142 | 61.850 | 67.967 | 25.789 | 51.94 | 60.595 | 13.45 | 82.16 | -16.255 | 59.965 | 52.8 | 54.2 | 21.985 | 78.575 | 1.41 | 34.355 |
| 302 | 65.739 | 72.344 | 25.372 | 64.662 | 71.635 | 27.851 | 47.93 | 55.78 | 14.165 | 79.49 | -15.51 | 53.475 | 54.855 | 57.51 | 22.915 | 80.465 | -1.5 | 35.83 |
| 303 | 25.639 | 13.008 | 10.798 | 29.810 | 14.906 | 11.715 | 21.37 | 11.71 | 6.51 | 40.755 | 57.965 | 12.07 | 27.58 | 15.845 | 12.635 | 46.765 | 58.865 | 1.235 |
| 304 | 42.719 | 35.579 | 22.623 | 45.401 | 38.833 | 24.988 | 28.71 | 21.635 | 12.13 | 53.64 | 33.725 | 14.51 | 38.975 | 30.535 | 20.195 | 62.11 | 33.01 | 9.555 |
| 305 | 55.629 | 53.978 | 33.884 | 54.467 | 53.264 | 34.587 | 39.75 | 42.015 | 20.105 | 70.88 | -2.355 | 24.875 | 46.685 | 43.32 | 28.855 | 71.77 | 14.295 | 10.415 |
| 306 | 62.670 | 64.498 | 39.555 | 59.063 | 60.360 | 38.449 | 51.27 | 56.23 | 29.075 | 79.745 | -7.615 | 23.795 | 52.825 | 51.72 | 34.165 | 77.105 | 7.785 | 11.465 |
| 307 | 66.411 | 69.256 | 42.771 | 61.657 | 63.479 | 40.681 | 52.53 | 56.745 | 33.43 | 80.035 | -5.58 | 17.57 | 56.81 | 57.125 | 35.635 | 80.245 | 4.305 | 14.76 |
| 308 | 69.806 | 73.799 | 44.969 | 63.927 | 66.266 | 41.878 | 57.335 | 60.065 | 39.56 | 81.875 | -1.415 | 12.2 | 60.54 | 61.445 | 38.335 | 82.615 | 3.08 | 15.13 |
| 309 | 21.470 | 10.697 | 2.821 | 22.333 | 9.572 | -1.147 | 20.1 | 11.16 | 1.585 | 39.85 | 55.755 | 42.745 | 25.175 | 14.315 | 6.695 | 44.685 | 57.995 | 18.04 |
| 310 | 33.401 | 28.160 | 2.195 | 36.364 | 32.105 | 1.363 | 26.635 | 19.915 | 2.525 | 51.74 | 33.65 | 54.205 | 34.85 | 28.845 | 3.37 | 60.64 | 25.8 | 63.26 |
| 311 | 43.202 | 44.295 | 4.797 | 47.097 | 50.531 | 6.859 | 36.24 | 37.485 | 3.835 | 67.635 | 0.335 | 72.295 | 44.275 | 43.855 | 4.175 | 72.13 | 5.875 | 77.99 |
| 312 | 48.849 | 53.837 | 5.924 | 53.581 | 61.336 | 9.535 | 40.18 | 48.57 | 4.45 | 75.18 | -19.555 | 81.655 | 56.06 | 64.13 | 5.165 | 84.035 | -13.875 | 93.055 |
| 313 | 51.702 | 58.539 | 6.476 | 56.958 | 66.707 | 10.846 | 42.395 | 50.26 | 4.61 | 76.23 | -17.34 | 82.54 | 56.555 | 65.315 | 5.245 | 84.64 | -15.27 | 93.69 |
| 314 | 54.880 | 63.434 | 7.123 | 60.734 | 72.374 | 12.291 | 42.945 | 50.025 | 4.485 | 76.085 | -15.085 | 82.985 | 56.865 | 65.655 | 5.325 | 84.82 | -15.265 | 93.59 |
| 315 | 22.693 | 11.757 | 7.012 | 24.565 | 11.819 | 5.234 | 20.215 | 11.185 | 2.93 | 39.885 | 56.155 | 30.615 | 25.635 | 14.34 | 9.535 | 44.72 | 59.805 | 7.27 |
| 316 | 37.022 | 31.516 | 13.920 | 38.894 | 33.837 | 14.641 | 26.335 | 19.875 | 6.925 | 51.7 | 32.6 | 29.13 | 35.905 | 28.665 | 14.315 | 60.485 | 30.04 | 20.315 |

Table B-2 (CONTINUED)

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 317 | 47.533 | 47.768 | 19.086 | 47.917 | 48.746 | 20.389 | 34.17 | 35.485 | 10.115 | 66.125 | -0.15 | 42.235 | 41.56 | 39.79 | 17.915 | 69.32 | 9.94 | 26.885 |
| 318 | 53.699 | 57.513 | 21.719 | 53.370 | 57.342 | 23.226 | 43.435 | 50.885 | 12.7 | 76.605 | -15.885 | 52.48 | 47.72 | 48.17 | 20.68 | 74.925 | 3.565 | 30.665 |
| 319 | 56.988 | 62.477 | 23.223 | 56.320 | 61.628 | 24.783 | 45.95 | 52.855 | 13.09 | 77.79 | -13.715 | 53.425 | 51.28 | 53.31 | 21.635 | 78.055 | -0.305 | 34.14 |
| 320 | 59.545 | 66.580 | 24.491 | 58.631 | 65.039 | 25.994 | 46.73 | 53.525 | 14.105 | 78.185 | -13.22 | 51.385 | 54.125 | 56.555 | 22 | 79.925 | -1.01 | 36.66 |
| 321 | 23.616 | 12.392 | 11.438 | 26.526 | 13.622 | 11.865 | 20.17 | 11.18 | 6.935 | 39.88 | 55.95 | 8.73 | 26.18 | 14.525 | 10.955 | 44.975 | 60.915 | 3.12 |
| 322 | 39.063 | 32.942 | 23.185 | 40.706 | 35.006 | 24.717 | 27.06 | 20.94 | 13.125 | 52.885 | 30.445 | 10.385 | 35.445 | 28.235 | 19.25 | 60.1 | 30.16 | 8.075 |
| 323 | 50.911 | 49.877 | 33.045 | 49.767 | 48.875 | 33.187 | 39.21 | 39.765 | 20.52 | 69.295 | 2.77 | 21.29 | 43.27 | 40.255 | 27.91 | 69.65 | 13.62 | 8.315 |
| 324 | 57.457 | 59.626 | 38.541 | 54.790 | 56.218 | 37.373 | 48.225 | 52.43 | 28.57 | 77.54 | -6.29 | 20.815 | 50.175 | 49.565 | 32.965 | 75.8 | 6.475 | 10.96 |
| 325 | 60.986 | 64.635 | 41.143 | 57.626 | 59.934 | 39.270 | 53.085 | 56.355 | 33.945 | 79.815 | -3.205 | 16.445 | 53.75 | 54.185 | 34.105 | 78.565 | 3.885 | 14.07 |
| 326 | 64.241 | 69.085 | 43.084 | 60.239 | 63.148 | 40.578 | 53.615 | 55.86 | 37.45 | 79.53 | -0.615 | 10.995 | 59.43 | 60.725 | 36.75 | 82.225 | 2.11 | 16.625 |
| 327 | 19.364 | 10.037 | 3.393 | 19.578 | 8.831 | -0.242 | 16.26 | 9.275 | 1.595 | 36.5 | 49.955 | 36.87 | 23.445 | 12.895 | 4.32 | 42.605 | 59.47 | 26.215 |
| 328 | 30.025 | 25.852 | 4.358 | 31.745 | 27.969 | 3.607 | 21.585 | 17.01 | 2.495 | 48.275 | 26.55 | 48.495 | 29.895 | 25.27 | 3.2 | 57.325 | 22.325 | 58.71 |
| 329 | 37.758 | 39.372 | 4.554 | 40.628 | 43.611 | 5.721 | 29.265 | 30.975 | 3.66 | 62.49 | -2.295 | 64.54 | 40.3 | 40.065 | 4.19 | 69.51 | 5.255 | 73.38 |
| 330 | 42.634 | 48.033 | 5.212 | 46.515 | 53.537 | 7.621 | 33.595 | 41.915 | 4.545 | 70.81 | -22.35 | 73.585 | 50.795 | 55.515 | 4.885 | 79.33 | -7.1 | 86.42 |
| 331 | 45.501 | 52.625 | 5.556 | 50.035 | 58.930 | 8.652 | 35.495 | 45.42 | 4.685 | 73.17 | -26.005 | 76.86 | 56.835 | 65.645 | 5.37 | 84.81 | -15.305 | 93.37 |
| 332 | 48.486 | 57.303 | 5.953 | 53.727 | 64.441 | 9.753 | 37.98 | 48.16 | 4.72 | 74.925 | -25.385 | 79.71 | 56.585 | 65.34 | 5.365 | 84.66 | -15.24 | 93.11 |
| 333 | 20.731 | 11.170 | 7.507 | 21.860 | 11.052 | 5.718 | 16.4 | 9.36 | 3.06 | 36.665 | 50.015 | 24.13 | 24.56 | 13.25 | 8.135 | 43.14 | 62.045 | 9.57 |
| 334 | 33.468 | 29.105 | 14.677 | 34.539 | 30.431 | 14.989 | 22.775 | 18.01 | 7.39 | 49.51 | 26.715 | 23.44 | 31.535 | 26.43 | 14.875 | 58.44 | 23.61 | 15.355 |
| 335 | 42.703 | 43.543 | 19.223 | 42.785 | 43.732 | 19.878 | 29.34 | 30.7 | 9.815 | 62.255 | -1.015 | 36.555 | 38.38 | 37.335 | 18.71 | 67.525 | 7.785 | 22.03 |
| 336 | 48.459 | 52.764 | 21.677 | 48.224 | 52.098 | 22.529 | 36.805 | 43 | 12.65 | 71.555 | -14.68 | 43.91 | 44.2 | 45.63 | 20.825 | 73.305 | 0.585 | 27.575 |
| 337 | 51.283 | 57.249 | 23.333 | 50.932 | 56.033 | 24.203 | 39.785 | 46.64 | 13.58 | 73.96 | -15.52 | 45.49 | 49.04 | 51.555 | 21.875 | 77.01 | -1.81 | 31.88 |
| 338 | 53.823 | 61.535 | 24.001 | 53.642 | 60.054 | 25.032 | 39.515 | 46.12 | 13.45 | 73.625 | -14.91 | 45.245 | 52.355 | 55.59 | 22.865 | 79.37 | -3.19 | 34.045 |
| 339 | 21.571 | 11.796 | 11.988 | 23.572 | 12.695 | 12.137 | 17.33 | 9.805 | 7.06 | 37.485 | 51.635 | 4.07 | 24.75 | 13.3 | 9.39 | 43.205 | 62.54 | 5.17 |
| 340 | 35.448 | 30.186 | 22.885 | 36.556 | 31.612 | 23.897 | 24.01 | 18.985 | 13.11 | 50.67 | 27.21 | 6.625 | 32.22 | 26.375 | 19.055 | 58.395 | 26.305 | 5.565 |
| 341 | 45.959 | 45.678 | 31.795 | 45.176 | 44.831 | 31.709 | 33.135 | 33.34 | 19 | 64.435 | 3.52 | 16.08 | 41.645 | 39.54 | 28.805 | 69.14 | 10.96 | 5.96 |
| 342 | 52.397 | 55.298 | 36.220 | 50.816 | 52.843 | 35.367 | 40.53 | 43.945 | 26.505 | 72.19 | -5.57 | 15.06 | 47.765 | 48.04 | 33.2 | 74.85 | 4.035 | 8.975 |
| 343 | 55.944 | 60.354 | 40.314 | 54.254 | 57.218 | 38.895 | 45 | 48.525 | 32.03 | 75.155 | -5.075 | 11.26 | 51.925 | 53.535 | 35.6 | 78.19 | 0.805 | 11.265 |
| 344 | 58.765 | 64.573 | 41.925 | 56.993 | 60.765 | 40.192 | 46.495 | 48.89 | 35.705 | 75.385 | -1.81 | 6.27 | 58.565 | 61.03 | 38.505 | 82.385 | -0.665 | 14.505 |
| 345 | 17.516 | 11.389 | 5.948 | 17.895 | 11.435 | 4.250 | 11.365 | 7.255 | 1.685 | 32.39 | 36.565 | 28.76 | 19.97 | 12.705 | 5.43 | 42.31 | 44.51 | 19.77 |
| 346 | 24.986 | 23.046 | 8.083 | 25.815 | 23.838 | 7.790 | 13.99 | 12.81 | 2.615 | 42.48 | 10.68 | 37.565 | 26.275 | 24.12 | 6.545 | 56.2 | 12.92 | 38.545 |
| 347 | 29.202 | 31.844 | 4.339 | 31.326 | 34.284 | 4.793 | 19.44 | 22.915 | 3.495 | 54.985 | -12.79 | 52.645 | 33.91 | 36.565 | 5.28 | 66.945 | -4.6 | 63.005 |
| 348 | 33.170 | 39.369 | 4.480 | 36.632 | 43.313 | 5.807 | 23.51 | 32.75 | 4.21 | 63.96 | -32.29 | 63.695 | 35 | 41.055 | 4.425 | 70.21 | -14.92 | 73.23 |
| 349 | 35.289 | 43.360 | 4.507 | 39.646 | 48.255 | 6.339 | 24.915 | 35.34 | 4.385 | 66.015 | -35.025 | 66.205 | 38.23 | 46.615 | 4.8 | 73.935 | -20.36 | 77.57 |
| 350 | 37.704 | 47.616 | 4.559 | 43.056 | 53.553 | 6.939 | 25.365 | 36.5 | 4.41 | 66.9 | -36.945 | 67.595 | 43.22 | 54.42 | 5.2 | 78.705 | -25.565 | 83.695 |
| 351 | 17.116 | 10.183 | 8.617 | 17.680 | 10.424 | 7.371 | 10.595 | 6.57 | 3.265 | 30.8 | 37.775 | 12.515 | 21.065 | 13.135 | 9.75 | 42.96 | 47.005 | 3.505 |
| 352 | 27.528 | 25.095 | 15.393 | 28.091 | 25.728 | 15.431 | 14.655 | 13.14 | 7.56 | 42.975 | 12.645 | 11.52 | 28.17 | 25.005 | 15.815 | 57.08 | 16.765 | 10.665 |
| 353 | 34.560 | 36.721 | 19.521 | 35.090 | 36.967 | 19.816 | 19.73 | 22.89 | 9.735 | 54.955 | -11.23 | 24.25 | 36.46 | 37.815 | 21.44 | 67.885 | 0 | 17 |
| 354 | 39.368 | 44.853 | 21.696 | 40.511 | 45.202 | 22.371 | 25.205 | 32.01 | 11.695 | 63.355 | -22.325 | 32.54 | 39.11 | 43.07 | 22.24 | 71.595 | -7.47 | 21.83 |
| 355 | 41.640 | 48.863 | 22.239 | 43.333 | 49.444 | 23.216 | 27.165 | 35.71 | 12.3 | 66.295 | -26.94 | 35.84 | 38.475 | 43.2 | 21.835 | 71.69 | -9.885 | 22.78 |
| 356 | 44.254 | 53.173 | 23.653 | 46.581 | 53.985 | 24.920 | 27.295 | 36.005 | 12.705 | 66.525 | -27.405 | 35.07 | 41.555 | 47.755 | 22.265 | 74.67 | -13.16 | 27.085 |
| 357 | 18.161 | 10.814 | 13.038 | 19.306 | 11.645 | 13.172 | 11.95 | 7.19 | 7.535 | 32.23 | 41.36 | -6.91 | 21.13 | 13.32 | 11.035 | 43.235 | 46.105 | -0.145 |
| 358 | 29.293 | 25.964 | 22.629 | 29.902 | 26.767 | 23.141 | 17.76 | 15.36 | 13.29 | 46.125 | 16.695 | -1.71 | 29.095 | 25.06 | 21.9 | 57.135 | 20.125 | -2.44 |
| 359 | 37.913 | 38.889 | 30.926 | 38.352 | 39.214 | 31.104 | 23.355 | 24.795 | 17.945 | 56.875 | -2.43 | 5.355 | 39.875 | 39.88 | 33.05 | 69.38 | 4.5 | -0.23 |
| 360 | 43.403 | 47.577 | 35.955 | 44.751 | 48.296 | 36.182 | 29.24 | 34.12 | 23.825 | 65.055 | -13.445 | 7.545 | 40.76 | 43.69 | 33.64 | 72.02 | -4.14 | 3.44 |
| 361 | 46.164 | 52.089 | 38.433 | 48.440 | 53.388 | 38.862 | 31.125 | 36.285 | 28.36 | 66.74 | -13.62 | 2.54 | 42.285 | 46.495 | 33.955 | 73.865 | -7.48 | 6.17 |
| 362 | 48.848 | 56.503 | 40.350 | 52.179 | 58.444 | 41.050 | 32.09 | 37.825 | 29.695 | 67.89 | -15.11 | 2.37 | 47.155 | 53.4 | 36.41 | 78.11 | -11.725 | 9.985 |
| 363 | 13.477 | 11.470 | 8.361 | 14.039 | 12.025 | 8.022 | 4.475 | 4.115 | 1.95 | 24.05 | 7.045 | 11.655 | 12.775 | 11.04 | 7.75 | 39.63 | 15.08 | 5 |
| 364 | 17.244 | 18.174 | 9.477 | 18.194 | 18.968 | 9.494 | 5.59 | 7.455 | 2.37 | 32.81 | -16.885 | 22.91 | 16.255 | 17 | 9.79 | 48.25 | -0.765 | 12.51 |
| 365 | 19.834 | 24.870 | 8.833 | 22.476 | 27.578 | 9.516 | 7.26 | 13.51 | 3.215 | 43.525 | -45.445 | 34.81 | 21.955 | 27.705 | 13.975 | 59.61 | -20.635 | 19.725 |
| 366 | 21.402 | 29.737 | 7.212 | 26.350 | 35.221 | 8.646 | 9.35 | 19.955 | 3.84 | 51.785 | -62.45 | 44.915 | 25.045 | 36.845 | 16.39 | 67.155 | -39.445 | 26.69 |
| 367 | 21.777 | 32.023 | 5.469 | 28.415 | 39.661 | 7.306 | 9.27 | 20.085 | 3.905 | 51.93 | -63.735 | 44.76 | 29.165 | 41.1 | 19.95 | 70.245 | -36.12 | 24.105 |
| 368 | 21.922 | 34.257 | 3.219 | 30.694 | 44.750 | 5.413 | 8.935 | 19.705 | 4 | 51.5 | -64.69 | 43.435 | 32.85 | 44.705 | 22.24 | 72.695 | -33.105 | 23.73 |
| 369 | 14.191 | 11.586 | 11.529 | 14.615 | 12.094 | 11.305 | 5.36 | 4.3 | 5.885 | 24.64 | 15.685 | -12.87 | 13.8 | 11.61 | 10.125 | 40.585 | 17.6 | -1.825 |

Table B-2 (CONTINUED)

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 370 | 19.012 | 19.312 | 15.466 | 19.672 | 19.954 | 15.606 | 6.77 | 8.11 | 7.72 | 34.21 | -10.155 | -4.225 | 17.02 | 17.42 | 13.645 | 48.775 | 1.23 | 1.905 |
| 371 | 23.381 | 27.553 | 18.831 | 25.756 | 30.092 | 19.901 | 8.615 | 13.53 | 9.39 | 43.55 | -33.115 | 5.74 | 21.835 | 25.68 | 18.725 | 57.725 | -13.05 | 5.12 |
| 372 | 26.331 | 33.678 | 20.786 | 31.283 | 39.095 | 23.168 | 11.045 | 20.245 | 11.22 | 52.11 | -50.765 | 14.58 | 24.645 | 30.7 | 21.565 | 62.25 | -19.97 | 7.035 |
| 373 | 27.618 | 36.773 | 21.777 | 34.561 | 44.482 | 25.181 | 11.115 | 21.335 | 11.665 | 53.32 | -55.465 | 15.31 | 23.635 | 30.755 | 20.925 | 62.295 | -24.59 | 8.38 |
| 374 | 29.195 | 40.195 | 22.818 | 38.434 | 50.520 | 27.376 | 11.39 | 22.3 | 12.015 | 54.34 | -57.88 | 16.055 | 25.96 | 34.72 | 23.36 | 65.52 | -28.56 | 9.23 |
| 375 | 14.103 | 10.776 | 14.265 | 14.391 | 11.107 | 14.369 | 6.475 | 4.55 | 9.035 | 25.425 | 24.66 | -24.27 | 15.26 | 12.265 | 14.23 | 41.62 | 22.015 | -11.955 |
| 376 | 20.625 | 19.992 | 21.774 | 21.210 | 20.665 | 22.436 | 8.97 | 9.595 | 13.625 | 37.105 | -2.32 | -18.185 | 17.335 | 17.395 | 18.755 | 48.755 | 3.065 | -10.41 |
| 377 | 26.095 | 29.046 | 28.771 | 29.074 | 32.636 | 30.858 | 10.915 | 14.845 | 16.245 | 45.42 | -22.855 | -10.47 | 23.9 | 26.885 | 26.61 | 58.87 | -8.625 | -8.08 |
| 378 | 30.000 | 35.852 | 33.891 | 36.656 | 43.829 | 37.989 | 13.935 | 21.385 | 21.7 | 53.365 | -36.59 | -8.56 | 25.5 | 30.86 | 28.985 | 62.385 | -16.965 | -5.97 |
| 379 | 32.147 | 39.647 | 36.032 | 41.150 | 50.326 | 41.297 | 14.52 | 23.065 | 22.73 | 55.135 | -40.615 | -7.5 | 26.59 | 33.2 | 29.305 | 64.32 | -20.75 | -3.16 |
| 380 | 33.713 | 43.290 | 38.317 | 46.566 | 58.644 | 45.695 | 14.375 | 23.51 | 24.025 | 55.595 | -43.48 | -9.135 | 30.3 | 38.87 | 32.56 | 68.65 | -24.97 | -0.76 |
| 381 | 9.092 | 9.568 | 8.630 | 9.227 | 9.524 | 8.299 | 2.52 | 3.295 | 2.205 | 21.195 | -11.905 | 4.325 | 5.02 | 5.15 | 4.53 | 27.15 | 0.655 | -1.615 |
| 382 | 10.052 | 13.160 | 9.089 | 11.070 | 14.355 | 9.212 | 3.04 | 5.73 | 2.285 | 28.715 | -34.845 | 16.595 | 9.225 | 13.315 | 9.64 | 43.23 | -26.655 | 4.355 |
| 383 | 7.542 | 15.189 | 7.760 | 12.849 | 23.485 | 10.081 | 4.21 | 10.415 | 3.005 | 38.585 | -59.215 | 27.815 | 6.52 | 15.415 | 5.84 | 46.19 | -64.41 | 24.475 |
| 384 | 9.519 | 19.589 | 8.823 | 18.974 | 33.830 | 13.317 | 5.4 | 14.31 | 4.02 | 44.67 | -70.24 | 31.55 | 8.42 | 18.825 | 9.135 | 50.48 | -64.78 | 18.59 |
| 385 | 10.957 | 22.508 | 10.149 | 23.485 | 41.044 | 16.439 | 6.04 | 15.87 | 5.015 | 46.8 | -72.12 | 29.635 | 9.55 | 20.05 | 11.26 | 51.895 | -61.285 | 14.08 |
| 386 | 12.257 | 25.159 | 11.176 | 27.726 | 47.730 | 19.113 | 6.535 | 16.615 | 5.965 | 47.775 | -71.025 | 26.64 | 10.875 | 21.58 | 13.205 | 53.58 | -58.355 | 11.37 |
| 387 | 9.470 | 9.473 | 11.261 | 9.169 | 8.974 | 10.941 | 3.385 | 3.47 | 6.185 | 21.825 | 0.72 | -19.135 | 8.97 | 9.27 | 10.695 | 36.485 | 0.305 | -10.725 |
| 388 | 11.689 | 14.050 | 14.132 | 12.339 | 14.938 | 14.662 | 4.245 | 6.24 | 7.49 | 30.01 | -21.81 | -10.56 | 10.66 | 15.065 | 15.21 | 45.715 | -26.075 | -7.42 |
| 389 | 11.676 | 18.056 | 16.338 | 17.006 | 26.098 | 20.288 | 5.655 | 11.35 | 9.56 | 40.17 | -47.79 | -0.68 | 9.26 | 18.725 | 15.6 | 50.365 | -57.115 | -0.365 |
| 390 | 11.317 | 20.744 | 17.997 | 23.720 | 39.556 | 26.979 | 7.36 | 15.79 | 11.425 | 46.695 | -58.14 | 4.62 | 9.79 | 19.4 | 16.81 | 51.155 | -56.2 | -1.905 |
| 391 | 12.689 | 23.450 | 19.552 | 28.677 | 47.223 | 30.758 | 7.92 | 16.76 | 12.355 | 47.955 | -58.355 | 4.06 | 10.815 | 20.62 | 17.835 | 52.53 | -54.235 | -1.875 |
| 392 | 14.053 | 26.142 | 20.939 | 33.688 | 54.882 | 34.307 | 8.33 | 17.68 | 13.2 | 49.1 | -59.565 | 3.67 | 11.885 | 21.765 | 19.045 | 53.77 | -51.95 | -2.38 |
| 393 | 9.767 | 9.038 | 14.286 | 8.971 | 7.910 | 14.245 | 4.735 | 3.775 | 10.545 | 22.92 | 15.295 | -33.65 | 9.835 | 9.83 | 15.19 | 37.52 | 2.8 | -21.475 |
| 394 | 12.625 | 14.048 | 19.870 | 13.108 | 14.902 | 21.487 | 6.005 | 7.24 | 13.39 | 32.345 | -10.185 | -25.755 | 12.415 | 16.965 | 23.365 | 48.22 | -24.355 | -20.615 |
| 395 | 13.673 | 18.515 | 25.188 | 20.120 | 28.401 | 31.961 | 7.51 | 11.975 | 16.98 | 41.18 | -32.945 | -19.495 | 11.28 | 19.84 | 24.05 | 51.655 | -47.065 | -15.975 |
| 396 | 12.324 | 20.151 | 28.565 | 29.288 | 46.290 | 44.057 | 9.07 | 16.135 | 19.345 | 47.15 | -44.815 | -14.465 | 13.605 | 22.22 | 27.965 | 54.26 | -42.555 | -18.315 |
| 397 | 14.089 | 23.359 | 31.400 | 36.702 | 57.439 | 50.540 | 9.84 | 17.825 | 21.095 | 49.285 | -47.74 | -14.385 | 15.24 | 23.94 | 30.43 | 56.025 | -40.12 | -19.25 |
| 398 | 15.908 | 26.668 | 34.080 | 44.424 | 68.925 | 56.826 | 10.245 | 18.73 | 21.565 | 50.37 | -49.29 | -13.445 | 17.49 | 26.005 | 34.87 | 58.035 | -36.14 | -22.44 |
| 399 | 21.248 | 11.705 | 12.127 | 23.144 | 12.588 | 12.273 | 15.93 | 9.22 | 6.255 | 36.4 | 48.485 | 5.69 | 24.57 | 13.19 | 9.915 | 43.045 | 62.46 | 3.12 |
| 400 | 33.416 | 27.339 | 21.761 | 34.859 | 29.036 | 22.907 | 21.85 | 16.26 | 11.15 | 47.32 | 31.895 | 6.53 | 33.57 | 26.835 | 21.525 | 58.81 | 29.26 | 1.195 |
| 401 | 44.318 | 42.313 | 32.724 | 43.997 | 42.220 | 32.964 | 28.25 | 25.83 | 18.365 | 57.875 | 13.67 | 6.145 | 42.32 | 38.655 | 31.58 | 68.49 | 15.775 | 0.465 |
| 402 | 50.612 | 51.360 | 38.737 | 49.428 | 49.875 | 37.982 | 36.82 | 38.58 | 25.095 | 68.45 | -1.24 | 11.09 | 48.165 | 47.13 | 37.245 | 74.26 | 7.645 | 2.19 |
| 403 | 53.880 | 55.869 | 41.652 | 52.371 | 53.696 | 40.372 | 41.52 | 43.95 | 29.955 | 72.2 | -2.575 | 9.37 | 50.575 | 50.585 | 38.12 | 76.425 | 4.85 | 4.735 |
| 404 | 57.105 | 60.474 | 44.366 | 55.391 | 57.607 | 42.547 | 45.22 | 48.04 | 34.86 | 74.85 | -3.12 | 6.555 | 54.51 | 55.38 | 41.505 | 79.255 | 2.825 | 5.165 |
| 405 | 21.535 | 11.826 | 13.226 | 23.689 | 12.954 | 13.859 | 15.805 | 9.05 | 7.485 | 36.08 | 49.165 | -0.085 | 24.63 | 13.325 | 9.98 | 43.245 | 61.86 | 3.235 |
| 406 | 33.981 | 27.613 | 24.147 | 35.583 | 29.514 | 25.627 | 22.54 | 16.56 | 14.17 | 47.7 | 33.43 | -1.36 | 33.79 | 26.965 | 23.61 | 58.94 | 29.5 | -2.6 |
| 407 | 44.581 | 42.186 | 35.689 | 44.458 | 42.400 | 35.972 | 31.62 | 28.65 | 23.63 | 60.475 | 15.18 | 0.005 | 42.78 | 39.22 | 35.655 | 68.905 | 15.365 | -4.83 |
| 408 | 51.407 | 51.671 | 42.766 | 50.563 | 50.720 | 41.886 | 40.525 | 42.285 | 32.88 | 71.065 | -0.765 | 2.925 | 48.675 | 47.44 | 41.265 | 74.465 | 8.17 | -2.785 |
| 409 | 55.146 | 56.751 | 46.652 | 54.152 | 55.306 | 45.111 | 46.98 | 49.37 | 38.865 | 75.68 | -1.74 | 2.445 | 51.745 | 52.005 | 44.485 | 77.28 | 4.23 | -1.97 |
| 410 | 57.896 | 60.696 | 49.020 | 56.872 | 58.830 | 46.990 | 50.08 | 52.715 | 44.935 | 77.71 | -2.005 | -1.775 | 57.065 | 58.17 | 47.375 | 80.825 | 2.415 | 0.705 |
| 411 | 21.704 | 11.893 | 14.384 | 24.090 | 13.262 | 15.513 | 16.84 | 9.64 | 8.3 | 37.185 | 50.255 | -1.325 | 24.735 | 13.34 | 10.29 | 43.265 | 62.24 | 2.265 |
| 412 | 34.388 | 27.883 | 26.881 | 36.111 | 29.970 | 28.672 | 24.82 | 18.15 | 19.68 | 49.68 | 34.95 | -10.805 | 32.695 | 25.715 | 23.915 | 57.77 | 30.69 | -5.185 |
| 413 | 45.618 | 42.915 | 39.375 | 45.748 | 43.534 | 39.703 | 33.05 | 30.465 | 27.08 | 62.055 | 13.47 | -3.39 | 40.91 | 37.13 | 36.99 | 67.375 | 16.35 | -9.335 |
| 414 | 52.587 | 52.507 | 46.720 | 52.176 | 52.213 | 45.748 | 43.24 | 44.13 | 36.64 | 72.315 | 2.065 | -0.325 | 47.68 | 45.855 | 43.675 | 73.455 | 9.82 | -7.565 |
| 415 | 56.129 | 57.364 | 50.547 | 55.766 | 56.838 | 48.924 | 48.425 | 50.37 | 43.56 | 76.295 | -0.385 | -2.53 | 52.525 | 52.6 | 47.04 | 77.63 | 4.74 | -4.415 |
| 416 | 59.249 | 61.728 | 53.612 | 59.092 | 61.068 | 51.442 | 50.755 | 53.005 | 47.3 | 77.88 | -0.94 | -4.295 | 59.29 | 60.335 | 52.805 | 82.02 | 2.68 | -3.37 |
| 417 | 19.670 | 11.238 | 12.162 | 21.070 | 11.998 | 12.114 | 12.94 | 7.7 | 6.275 | 33.35 | 43.28 | 0.335 | 21.525 | 12.03 | 9.72 | 41.265 | 56.48 | 0.685 |
| 418 | 30.851 | 25.618 | 22.086 | 31.933 | 26.937 | 22.975 | 17.84 | 13.885 | 11.605 | 44.065 | 26.015 | -0.45 | 32.135 | 26.085 | 21.735 | 58.1 | 27.23 | -0.44 |
| 419 | 40.905 | 39.342 | 31.837 | 40.839 | 39.439 | 32.048 | 23.875 | 22.425 | 16.99 | 54.475 | 10.2 | 3.395 | 41.64 | 38.89 | 33.46 | 68.65 | 12.995 | -2.08 |
| 420 | 46.934 | 48.120 | 37.740 | 46.517 | 47.407 | 37.261 | 32.365 | 35.03 | 24.015 | 65.77 | -4.97 | 8.425 | 48.625 | 48.235 | 39.68 | 74.96 | 5.865 | 0.14 |
| 421 | 49.756 | 52.302 | 40.344 | 49.380 | 51.298 | 39.562 | 34.925 | 38.3 | 27.035 | 68.245 | -6.68 | 7.345 | 49.38 | 50.385 | 40.045 | 76.285 | 2.175 | 1.95 |
| 422 | 53.268 | 57.031 | 43.848 | 53.020 | 55.786 | 42.681 | 38.745 | 41.74 | 32.44 | 70.69 | -4.705 | 2.93 | 51.135 | 53.16 | 40.86 | 77.96 | -0.32 | 3.76 |

Table B-2 (CONTINUED)

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 423 | 19.876 | 11.340 | 13.451 | 21.485 | 12.316 | 13.887 | 13.435 | 7.935 | 7.465 | 33.85 | 44.31 | -3.85 | 21.685 | 12.18 | 10.26 | 41.5 | 56.215 | -0.7 |
| 424 | 31.365 | 25.856 | 24.219 | 32.585 | 27.352 | 25.393 | 19.55 | 14.62 | 15.33 | 45.115 | 30.32 | -8.765 | 32.925 | 26.675 | 24.155 | 58.665 | 27.605 | -4.065 |
| 425 | 41.287 | 39.576 | 35.086 | 41.454 | 40.005 | 35.363 | 26.53 | 24.95 | 22.415 | 57.025 | 10.455 | -3.64 | 42.22 | 39.145 | 36.67 | 68.85 | 13.93 | -6.34 |
| 426 | 47.746 | 48.454 | 41.797 | 47.767 | 48.405 | 41.322 | 35.185 | 36.99 | 30.615 | 67.27 | -1.625 | -0.155 | 45.825 | 44.89 | 40.315 | 72.81 | 7.36 | -4.42 |
| 427 | 50.818 | 52.473 | 44.936 | 50.894 | 52.286 | 44.092 | 39.81 | 42.08 | 35.01 | 70.925 | -2.365 | -0.43 | 48.505 | 49.26 | 42.54 | 75.61 | 2.785 | -2.44 |
| 428 | 54.414 | 57.613 | 48.212 | 54.774 | 57.303 | 46.941 | 44.13 | 46.585 | 41.085 | 73.925 | -2.265 | -3.5 | 52.275 | 54.6 | 45.235 | 78.795 | -0.945 | -0.25 |
| 429 | 20.039 | 11.402 | 14.570 | 21.835 | 12.560 | 15.434 | 14.62 | 8.52 | 8.48 | 35.045 | 46.585 | -5.68 | 21.365 | 11.83 | 9.605 | 40.94 | 57.095 | 0.53 |
| 430 | 31.829 | 26.038 | 26.173 | 33.215 | 27.742 | 27.640 | 22.22 | 16.605 | 19.135 | 47.76 | 31.715 | -12.965 | 32.45 | 25.78 | 25.735 | 57.83 | 29.55 | -8.35 |
| 431 | 42.126 | 39.931 | 37.977 | 42.556 | 40.785 | 38.407 | 28.95 | 26.76 | 26.04 | 58.75 | 12.585 | -7.3 | 38.16 | 34.655 | 36.28 | 65.48 | 15.885 | -11.615 |
| 432 | 48.656 | 48.836 | 45.497 | 49.190 | 49.590 | 45.109 | 37.28 | 38.73 | 34.485 | 68.555 | -0.195 | -3.765 | 44.06 | 42.67 | 41.945 | 71.33 | 8.68 | -9.065 |
| 433 | 52.303 | 53.671 | 49.459 | 53.127 | 54.545 | 48.621 | 40.975 | 43.355 | 39.24 | 71.79 | -2.495 | -4.76 | 48.7 | 49.465 | 45.8 | 75.735 | 2.755 | -6.2 |
| 434 | 55.311 | 58.262 | 52.631 | 56.860 | 59.563 | 51.523 | 44.475 | 46.79 | 43.6 | 74.055 | -1.84 | -6.44 | 54.66 | 56.425 | 51.4 | 79.85 | 0.645 | -5.565 |
| 435 | 18.625 | 10.939 | 12.523 | 19.815 | 11.720 | 12.519 | 11.19 | 6.73 | 6.235 | 31.19 | 40.48 | -3.19 | 21.93 | 13.33 | 11.51 | 43.26 | 49.8 | -1.56 |
| 436 | 28.916 | 24.819 | 22.205 | 29.685 | 25.799 | 22.846 | 16.23 | 12.74 | 11.605 | 42.36 | 24.525 | -3.4 | 30.085 | 24.78 | 22.23 | 56.855 | 25.07 | -3.565 |
| 437 | 37.641 | 36.505 | 31.215 | 37.896 | 36.903 | 31.506 | 21.185 | 19.985 | 17.37 | 51.82 | 9.375 | -2.05 | 39.93 | 37.405 | 33.89 | 67.575 | 12.44 | -4.57 |
| 438 | 43.164 | 44.690 | 37.224 | 43.663 | 45.008 | 37.175 | 28.065 | 30.505 | 23.985 | 62.09 | -5.23 | 2.135 | 45.91 | 46.185 | 39.765 | 73.65 | 3.96 | -2.235 |
| 439 | 45.696 | 48.601 | 40.271 | 46.732 | 49.252 | 40.179 | 29.965 | 33.035 | 27.015 | 64.19 | -6.975 | 0.39 | 44.515 | 46.2 | 38.685 | 73.67 | -0.085 | -0.765 |
| 440 | 48.672 | 52.835 | 42.837 | 50.121 | 53.603 | 42.619 | 32.665 | 36.36 | 31.295 | 66.795 | -8.285 | -2.035 | 45.9 | 48.17 | 39.78 | 74.92 | -1.535 | -0.065 |
| 441 | 18.480 | 10.925 | 13.695 | 19.756 | 11.842 | 14.064 | 11.735 | 7.035 | 7.225 | 31.885 | 41.38 | -6.27 | 21.75 | 13.36 | 11.785 | 43.3 | 48.76 | -2.31 |
| 442 | 28.789 | 24.035 | 23.752 | 29.770 | 25.255 | 24.716 | 17.235 | 13.055 | 14.55 | 42.85 | 28 | -10.7 | 30.215 | 24.815 | 24.39 | 56.89 | 25.41 | -7.56 |
| 443 | 38.067 | 36.750 | 34.682 | 38.654 | 37.614 | 35.162 | 24.255 | 22.435 | 22.97 | 54.485 | 11.8 | -9.08 | 36.68 | 34.69 | 35.015 | 65.51 | 10.965 | -9.78 |
| 444 | 43.729 | 45.041 | 41.045 | 44.886 | 46.260 | 41.206 | 31.36 | 33.25 | 30.535 | 64.36 | -2.525 | -5.05 | 40.95 | 41.07 | 39.36 | 70.22 | 4.19 | -7.62 |
| 445 | 46.587 | 49.177 | 43.953 | 48.263 | 50.738 | 44.007 | 34.465 | 37.375 | 34.555 | 67.56 | -5.315 | -5.585 | 42.605 | 43.865 | 40.825 | 72.135 | 0.925 | -6.245 |
| 446 | 49.672 | 53.333 | 47.278 | 51.999 | 55.387 | 47.225 | 37.345 | 40.455 | 39.195 | 69.795 | -5.33 | -8.15 | 47.865 | 50.89 | 44.84 | 76.605 | -3.295 | -3.555 |
| 447 | 18.637 | 10.976 | 14.784 | 20.057 | 12.021 | 15.527 | 12.37 | 7.415 | 8.745 | 32.725 | 42.145 | -10.65 | 21.835 | 13.47 | 11.855 | 43.455 | 48.455 | -2.235 |
| 448 | 29.272 | 24.210 | 25.886 | 30.417 | 25.633 | 27.165 | 19.28 | 14.615 | 19.215 | 45.105 | 29.01 | -17.705 | 29.13 | 23.315 | 24.85 | 55.395 | 27.755 | -10.975 |
| 449 | 38.729 | 36.983 | 37.546 | 39.639 | 38.342 | 38.256 | 25.42 | 23.685 | 25.21 | 55.77 | 11.24 | -10.97 | 33.855 | 30.8 | 33.925 | 62.34 | 15.065 | -13.665 |
| 450 | 44.633 | 45.409 | 44.785 | 46.405 | 47.573 | 45.179 | 33.15 | 34.975 | 34.575 | 65.735 | -2.015 | -8.755 | 39.055 | 38.745 | 39.27 | 68.56 | 5.445 | -10.365 |
| 451 | 47.902 | 49.949 | 48.788 | 50.561 | 52.969 | 49.122 | 35.27 | 37.72 | 37.71 | 67.815 | -3.675 | -9.56 | 43.93 | 45.11 | 44.505 | 72.96 | 1.265 | -9.435 |
| 452 | 51.193 | 54.640 | 52.169 | 54.857 | 58.527 | 52.440 | 38.455 | 41.92 | 42.335 | 70.82 | -6.175 | -10.44 | 49.8 | 52.54 | 49.985 | 77.6 | -2.295 | -7.855 |
| 453 | 15.451 | 9.944 | 12.927 | 16.146 | 10.666 | 12.947 | 7.705 | 4.995 | 6.615 | 26.72 | 31.235 | -12.595 | 21.225 | 16.025 | 16.355 | 47 | 30.34 | -8 |
| 454 | 23.789 | 20.973 | 21.488 | 24.377 | 21.691 | 22.032 | 10.425 | 9.135 | 11.385 | 36.24 | 13.02 | -13.305 | 25.365 | 21.775 | 22.94 | 53.775 | 19.57 | -10.23 |
| 455 | 30.787 | 30.876 | 29.711 | 31.867 | 32.151 | 30.492 | 13.71 | 14.53 | 15.625 | 44.98 | -1.915 | -9.72 | 30.99 | 30.095 | 30.395 | 61.725 | 7.435 | -9.36 |
| 456 | 35.398 | 37.883 | 35.289 | 37.839 | 40.561 | 36.544 | 16.835 | 20.2 | 20.48 | 52.065 | -13.92 | -8.345 | 35.905 | 37.46 | 36.77 | 67.615 | -0.725 | -8.605 |
| 457 | 37.875 | 41.657 | 37.945 | 41.318 | 45.327 | 39.530 | 19.705 | 24.575 | 23.975 | 56.665 | -18.675 | -7.19 | 37.545 | 40.37 | 38.47 | 69.725 | -4.415 | -7.29 |
| 458 | 40.708 | 45.731 | 41.097 | 45.385 | 50.627 | 43.069 | 22.235 | 27.515 | 28.235 | 59.45 | -18.605 | -9.81 | 37.17 | 41.13 | 37.655 | 70.255 | -7.945 | -5.25 |
| 459 | 15.516 | 9.962 | 14.123 | 16.252 | 10.687 | 14.443 | 7.77 | 4.95 | 7.68 | 26.59 | 32.36 | -17.225 | 21.225 | 16.085 | 16.95 | 47.08 | 29.98 | -9.245 |
| 460 | 23.999 | 20.763 | 23.189 | 24.670 | 21.586 | 23.992 | 11.38 | 9.29 | 14.88 | 36.54 | 18.82 | -22.415 | 24.315 | 20.795 | 23.325 | 52.72 | 19.655 | -12.79 |
| 461 | 31.746 | 31.410 | 32.985 | 33.129 | 33.152 | 34.087 | 16.34 | 16.45 | 20.765 | 47.555 | 2.745 | -16.7 | 28.565 | 27.785 | 31.62 | 59.68 | 7.06 | -14.79 |
| 462 | 36.428 | 38.440 | 39.458 | 39.594 | 42.194 | 41.197 | 20.5 | 23.58 | 27.225 | 55.66 | -10.46 | -14.66 | 33.26 | 34.45 | 37.705 | 65.31 | 0.18 | -13.87 |
| 463 | 38.987 | 42.453 | 42.465 | 43.545 | 47.699 | 44.673 | 22.235 | 26.495 | 29.845 | 58.505 | -14.53 | -14.06 | 34.985 | 38 | 39.605 | 68.02 | -5.535 | -11.75 |
| 464 | 40.271 | 45.376 | 45.497 | 47.395 | 53.622 | 48.970 | 25.575 | 30.2 | 34.595 | 61.825 | -14.205 | -15.515 | 39.155 | 43.6 | 43.735 | 71.95 | -8.87 | -10.215 |
| 465 | 15.884 | 10.058 | 15.301 | 16.724 | 10.820 | 15.955 | 8.66 | 5.29 | 9.7 | 27.555 | 36.205 | -22.89 | 21.595 | 16.475 | 18.135 | 47.59 | 29.525 | -11.045 |
| 466 | 24.298 | 20.694 | 24.984 | 25.085 | 21.653 | 26.093 | 13.28 | 10.58 | 18.3 | 38.865 | 21.71 | -26.475 | 23.43 | 19.94 | 23.46 | 51.765 | 19.89 | -14.675 |
| 467 | 32.242 | 31.491 | 36.029 | 34.067 | 33.886 | 37.581 | 18.06 | 17.815 | 24.74 | 49.27 | 4.755 | -21.33 | 28.025 | 26.495 | 32.065 | 58.5 | 10.08 | -17.515 |
| 468 | 37.438 | 38.955 | 43.534 | 41.501 | 44.043 | 45.872 | 22.44 | 25.21 | 30.98 | 57.275 | -8.31 | -17.955 | 31.115 | 32.285 | 36.71 | 63.565 | -0.07 | -15.49 |
| 469 | 39.877 | 42.579 | 46.851 | 45.463 | 49.441 | 49.714 | 24.115 | 27.845 | 33.795 | 59.745 | -11.485 | -17.945 | 34.535 | 37.21 | 41.37 | 67.425 | -4.525 | -15.055 |
| 470 | 42.403 | 46.767 | 50.183 | 50.314 | 56.282 | 53.921 | 25.15 | 29.885 | 37.005 | 61.56 | -14.82 | -19.38 | 40.855 | 44.95 | 47.98 | 72.85 | -7.455 | -13.755 |
| 471 | 11.341 | 8.343 | 12.957 | 11.325 | 8.342 | 12.897 | 4.495 | 3.215 | 6.995 | 20.885 | 20.965 | -24.275 | 13.315 | 10.475 | 14.27 | 38.685 | 22.74 | -17.145 |
| 472 | 17.653 | 16.088 | 25.568 | 18.058 | 16.554 | 27.398 | 6.16 | 6.31 | 11.21 | 30.175 | 0.84 | -23.215 | 15.325 | 15.44 | 19.57 | 46.225 | 2.64 | -16.525 |
| 473 | 24.590 | 28.197 | 32.221 | 29.663 | 34.816 | 36.305 | 7.55 | 9.505 | 14.795 | 36.945 | -14.27 | -21.5 | 18.78 | 21.58 | 26.305 | 53.565 | -10.08 | -16.685 |
| 474 | 25.985 | 30.678 | 35.232 | 33.383 | 40.374 | 40.861 | 9.555 | 14.39 | 18.09 | 44.79 | -30.67 | -15.795 | 21.74 | 27.01 | 30.455 | 58.98 | -18.875 | -14.19 |
| 475 | 27.237 | 33.224 | 37.809 | 37.540 | 46.750 | 45.267 | 10.64 | 16.71 | 19.96 | 47.895 | -35.58 | -14.465 | 20.9 | 26.83 | 29.19 | 58.815 | -22.145 | -12.47 |

**Table B-2 (CONTINUED)**

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 476 | 11.330 | 8.277 | 13.882 | 11.204 | 8.080 | 13.976 | 11.735 | 19.54 | 22.1 | 51.31 | -42.37 | -12.88 | 21.58 | 29.15 | 30.275 | 60.91 | -27.96 | -10.585 |
| 477 | 17.093 | 15.945 | 21.886 | 17.316 | 16.160 | 22.872 | 4.89 | 3.35 | 8.74 | 21.4 | 23.835 | -30.14 | 13.54 | 10.59 | 15.68 | 38.875 | 23.325 | -20.38 |
| 478 | 21.582 | 22.894 | 29.738 | 24.184 | 26.404 | 32.665 | 6.945 | 6.315 | 14.36 | 30.195 | 8.92 | -32.03 | 15.06 | 15.31 | 20.705 | 46.055 | 1.79 | -19.165 |
| 479 | 24.938 | 28.020 | 35.999 | 31.061 | 36.271 | 41.327 | 8.505 | 10.09 | 17.605 | 38 | -10.23 | -26.41 | 18.345 | 21.435 | 27.7 | 53.42 | -11.66 | -19.315 |
| 480 | 26.643 | 30.982 | 39.522 | 35.814 | 43.327 | 46.816 | 11.11 | 15.16 | 22.475 | 45.85 | -23.285 | -23.015 | 20.215 | 25.75 | 32.61 | 57.79 | -21.065 | -19.55 |
| 481 | 28.210 | 33.563 | 42.557 | 40.302 | 49.812 | 51.642 | 11.905 | 17.4 | 24.35 | 48.76 | -30.165 | -21.515 | 21.005 | 28.09 | 33.63 | 59.965 | -26.605 | -17.325 |
| 482 | 11.533 | 8.290 | 14.843 | 11.359 | 7.968 | 15.135 | 13.61 | 20.72 | 27.97 | 52.64 | -35.525 | -21.125 | 23.565 | 32.69 | 38.45 | 63.905 | -31.84 | -17.295 |
| 483 | 17.233 | 15.943 | 23.669 | 17.512 | 16.242 | 25.055 | 5.85 | 3.725 | 11.495 | 22.745 | 29.505 | -36.88 | 13.095 | 10.35 | 16.32 | 38.465 | 22.215 | -22.62 |
| 484 | 22.302 | 22.958 | 33.222 | 25.425 | 27.274 | 37.030 | 8.21 | 7.155 | 18.64 | 32.155 | 12.41 | -38.795 | 14.605 | 14.66 | 21.11 | 45.15 | 2.885 | -21.53 |
| 485 | 25.530 | 28.115 | 39.786 | 32.913 | 38.291 | 46.470 | 10.39 | 11.495 | 22.95 | 40.4 | -5.185 | -33.325 | 18.035 | 21.04 | 30.22 | 52.985 | -11.45 | -24.165 |
| 486 | 25.530 | 28.115 | 39.786 | 32.913 | 38.291 | 46.470 | 12.425 | 16.285 | 27.385 | 47.345 | -20.475 | -29.275 | 20.69 | 26.155 | 34.52 | 58.18 | -20.42 | -21.69 |
| 487 | 27.136 | 30.881 | 43.184 | 37.683 | 45.380 | 51.880 | 13.26 | 18.595 | 29.095 | 50.215 | -27.295 | -27.15 | 23.56 | 32.28 | 40.305 | 63.565 | -30.415 | -20.325 |
| 488 | 29.105 | 33.879 | 46.721 | 42.977 | 52.860 | 57.351 | 14.195 | 21.14 | 30.905 | 53.1 | -33.84 | -25.045 | 25.985 | 34.01 | 45.415 | 64.97 | -26.04 | -24.315 |
| 489 | 8.157 | 7.724 | 13.393 | 6.984 | 6.109 | 13.201 | 3.9 | 2.92 | 9.39 | 19.705 | 17.69 | -35.36 | 10.23 | 9.92 | 15.855 | 37.695 | 5.26 | -22.845 |
| 490 | 10.740 | 11.574 | 18.469 | 10.371 | 11.256 | 19.679 | 4.875 | 5.245 | 12.09 | 27.43 | -2.335 | -30.56 | 13.395 | 17.785 | 26.705 | 49.235 | -22.21 | -24.85 |
| 491 | 11.371 | 13.766 | 27.927 | 15.878 | 21.402 | 35.631 | 6.04 | 7.935 | 15.605 | 33.85 | -16.32 | -28.865 | 12.105 | 20.375 | 26.62 | 52.26 | -43.835 | -19.49 |
| 492 | 10.057 | 15.241 | 27.763 | 21.008 | 33.082 | 40.433 | 7.44 | 11.65 | 18.37 | 40.66 | -31.39 | -23.54 | 13.39 | 21.41 | 30.205 | 53.4 | -40.2 | -23.425 |
| 493 | 11.237 | 17.347 | 29.939 | 25.900 | 40.574 | 45.196 | 8.2 | 13.52 | 19.52 | 43.54 | -36.765 | -21.055 | 14.7 | 22.675 | 32.98 | 54.735 | -37.765 | -25.375 |
| 494 | 12.547 | 19.575 | 32.698 | 31.691 | 49.277 | 51.127 | 9.1 | 15.465 | 21.535 | 46.265 | -40.765 | -20.455 | 16.905 | 24.64 | 37.85 | 56.72 | -33.605 | -28.875 |
| 495 | 7.972 | 7.195 | 13.756 | 6.642 | 5.353 | 13.615 | 4.33 | 3.025 | 11.145 | 20.14 | 21.935 | -40.31 | 10.195 | 9.77 | 16.945 | 37.42 | 6.175 | -25.895 |
| 496 | 10.528 | 11.173 | 19.987 | 10.102 | 10.854 | 21.746 | 5.63 | 5.54 | 15.27 | 28.225 | 3.365 | -37.73 | 13.165 | 17.47 | 28.41 | 48.845 | -22.045 | -28.38 |
| 497 | 11.885 | 14.435 | 26.830 | 15.882 | 21.122 | 33.466 | 7.06 | 8.48 | 19.08 | 34.965 | -10.535 | -34.895 | 13.315 | 20.88 | 32.005 | 52.815 | -38.19 | -27.22 |
| 498 | 10.146 | 14.689 | 30.790 | 22.413 | 34.740 | 45.610 | 8.955 | 12.72 | 22.975 | 42.34 | -25.055 | -30.03 | 16.11 | 23 | 39.53 | 55.075 | -30.975 | -33.96 |
| 499 | 11.499 | 16.859 | 34.163 | 28.619 | 44.073 | 52.641 | 9.795 | 14.775 | 24.8 | 45.325 | -31.05 | -28.25 | 17.44 | 24.155 | 42.425 | 56.24 | -28.62 | -35.685 |
| 500 | 12.872 | 19.070 | 37.401 | 35.124 | 53.783 | 59.531 | 10.99 | 16.76 | 27.745 | 47.955 | -33.255 | -28.82 | 18.895 | 25.885 | 44.04 | 57.925 | -28.22 | -34.79 |
| 501 | 8.196 | 7.001 | 14.597 | 6.788 | 5.018 | 14.629 | 4.835 | 3.09 | 12.53 | 20.395 | 27.49 | -43.96 | 9.63 | 9.355 | 16.905 | 36.65 | 5.005 | -27.115 |
| 502 | 11.004 | 11.175 | 21.576 | 10.560 | 10.802 | 23.715 | 6.99 | 6.14 | 19.55 | 29.755 | 11.265 | -44.88 | 12.075 | 15.995 | 28.31 | 46.96 | -21.27 | -31.47 |
| 503 | 11.791 | 13.882 | 29.172 | 16.458 | 21.734 | 37.253 | 8.385 | 9.305 | 23.49 | 36.555 | -5.055 | -40.96 | 14.07 | 21.03 | 35.755 | 52.985 | -34.14 | -32.415 |
| 504 | 10.211 | 14.049 | 33.958 | 24.025 | 36.691 | 51.181 | 9.9 | 13.045 | 26.57 | 42.83 | -19.425 | -35.665 | 16.97 | 23.655 | 41.94 | 55.74 | -29.04 | -35.935 |
| 505 | 11.716 | 16.459 | 37.587 | 31.111 | 47.360 | 58.859 | 11.075 | 15.855 | 28.665 | 46.78 | -27.57 | -32.37 | 18.055 | 24.875 | 42.82 | 56.955 | -28.42 | -34.955 |
| 506 | 13.160 | 18.598 | 41.569 | 38.499 | 58.304 | 67.181 | 11.79 | 17.475 | 30.39 | 48.85 | -31.345 | -31.565 | 19.89 | 27.03 | 44.76 | 59.005 | -27.875 | -33.805 |
| 507 | 19.205 | 10.043 | 3.701 | 19.423 | 8.922 | 0.231 | 16.375 | 9.29 | 1.545 | 36.54 | 50.405 | 37.46 | 23.16 | 12.65 | 4.055 | 42.23 | 59.82 | 27.115 |
| 508 | 28.169 | 23.063 | 2.277 | 29.906 | 25.057 | 0.834 | 22.835 | 16.52 | 2.415 | 47.645 | 35.015 | 48.1 | 30.555 | 24.455 | 3.075 | 56.54 | 28.22 | 58.27 |
| 509 | 36.504 | 36.255 | 4.165 | 39.217 | 40.312 | 4.879 | 27.28 | 25.225 | 3.125 | 57.29 | 12.32 | 59.215 | 37.045 | 34.87 | 3.92 | 65.645 | 11.565 | 68.32 |
| 510 | 41.447 | 44.463 | 4.958 | 44.920 | 49.714 | 6.891 | 35.27 | 39.655 | 4.055 | 69.225 | -9.755 | 73.685 | 44.995 | 46.245 | 4.505 | 73.7 | 1.18 | 78.775 |
| 511 | 43.362 | 47.944 | 5.252 | 47.221 | 53.666 | 7.698 | 37.445 | 44.85 | 4.345 | 72.795 | -17.945 | 78.14 | 49.61 | 53.38 | 4.755 | 78.095 | -4.935 | 84.985 |
| 512 | 45.812 | 51.953 | 5.588 | 50.189 | 58.329 | 8.648 | 38.765 | 47.505 | 4.555 | 74.51 | -21.095 | 79.905 | 55.715 | 63.765 | 5.22 | 83.84 | -13.9 | 92.465 |
| 513 | 19.921 | 10.778 | 6.529 | 20.690 | 10.398 | 4.304 | 15.77 | 9 | 1.995 | 35.98 | 49.39 | 31.78 | 24.005 | 12.89 | 7.64 | 42.595 | 61.99 | 10.53 |
| 514 | 30.852 | 25.801 | 10.701 | 32.161 | 27.275 | 10.546 | 20.44 | 15.295 | 4.11 | 46.035 | 30.74 | 33.355 | 30.005 | 24.295 | 12.035 | 56.38 | 26.83 | 19.505 |
| 515 | 39.590 | 38.850 | 14.303 | 40.440 | 40.161 | 15.047 | 26.33 | 24.46 | 5.795 | 56.54 | 11.695 | 42.565 | 35.23 | 32.645 | 15.51 | 63.87 | 13.175 | 23.13 |
| 516 | 44.926 | 47.264 | 15.857 | 45.635 | 48.343 | 17.115 | 33.61 | 37.05 | 7.415 | 67.315 | -7.225 | 54.055 | 40.805 | 40.8 | 17.93 | 70.03 | 4.555 | 28.07 |
| 517 | 47.585 | 51.852 | 17.348 | 48.159 | 52.485 | 18.775 | 37.615 | 43.55 | 8.335 | 71.93 | -13.66 | 58.47 | 43.38 | 44.82 | 18.655 | 72.77 | 0.485 | 31.23 |
| 518 | 50.015 | 55.562 | 18.288 | 50.566 | 55.978 | 19.904 | 39.34 | 47.645 | 9.135 | 74.605 | -19.675 | 60.18 | 47.59 | 49.515 | 19.385 | 75.765 | -0.405 | 34.825 |
| 519 | 20.856 | 11.450 | 9.880 | 22.323 | 11.852 | 9.081 | 16.88 | 9.485 | 5.855 | 36.905 | 51.665 | 8.4 | 23.93 | 12.765 | 8.135 | 42.41 | 62.465 | 8.355 |
| 520 | 32.571 | 26.961 | 17.586 | 33.852 | 28.442 | 18.209 | 22.93 | 16.9 | 10.12 | 48.135 | 33.34 | 11.19 | 30.305 | 24.33 | 15.33 | 56.4 | 27.81 | 10.75 |
| 521 | 42.686 | 41.345 | 25.574 | 42.429 | 41.237 | 25.953 | 28.57 | 26.665 | 13.83 | 58.66 | 11.505 | 18.46 | 37.64 | 34.385 | 22.245 | 65.255 | 15.135 | 10.89 |
| 522 | 48.698 | 50.305 | 30.351 | 47.511 | 48.713 | 30.182 | 36.525 | 39.22 | 16.825 | 68.91 | -4.21 | 28.665 | 43.27 | 42.72 | 27.595 | 71.36 | 6.225 | 11.795 |
| 523 | 51.632 | 54.355 | 32.786 | 50.047 | 52.037 | 32.306 | 40.09 | 44.265 | 19.425 | 72.405 | -7.87 | 28.925 | 45.59 | 46.075 | 29.105 | 73.59 | 3.35 | 13.14 |
| 524 | 54.793 | 58.932 | 34.743 | 52.827 | 55.766 | 33.945 | 43.73 | 48.72 | 21.945 | 75.275 | -9.275 | 28.745 | 51.62 | 53.125 | 32.41 | 77.945 | 1.04 | 15.49 |
| 525 | 17.594 | 9.523 | 3.883 | 17.562 | 8.533 | 0.740 | 13.16 | 7.705 | 1.49 | 33.36 | 44.665 | 32.585 | 21.065 | 11.655 | 3.255 | 40.66 | 56.92 | 29.57 |
| 526 | 25.455 | 21.170 | 2.708 | 26.674 | 22.411 | 1.384 | 18.61 | 14.13 | 2.23 | 44.415 | 28.555 | 44.14 | 27.055 | 22.42 | 2.99 | 54.46 | 23.615 | 55.335 |
| 527 | 32.916 | 33.080 | 4.150 | 35.066 | 36.050 | 4.495 | 23.34 | 22.085 | 2.97 | 54.12 | 9.37 | 54.855 | 32.835 | 32.07 | 3.78 | 63.385 | 6.935 | 65.295 |
| 528 | 36.962 | 40.304 | 4.680 | 39.877 | 44.305 | 5.980 | 28.79 | 33.105 | 3.76 | 64.245 | -11.695 | 66.925 | 40.565 | 42.03 | 4.305 | 70.88 | 0.145 | 75.07 |

Table B-2 (CONTINUED)

| No. | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 529 | 39.294 | 44.193 | 4.901 | 42.729 | 48.849 | 6.730 | 31.605 | 38.725 | 3.995 | 68.55 | -19.7 | 72.87 | 43.575 | 47.24 | 4.52 | 74.34 | -5.71 | 79.795 |
| 530 | 41.477 | 47.721 | 5.104 | 45.424 | 53.005 | 7.429 | 32.605 | 41.91 | 4.455 | 70.805 | -25.83 | 74.055 | 48.265 | 54.145 | 4.79 | 78.54 | -10.51 | 85.545 |
| 531 | 18.398 | 10.351 | 6.933 | 18.906 | 10.114 | 4.959 | 12.695 | 7.495 | 1.955 | 32.905 | 43.575 | 26.875 | 21.135 | 11.625 | 7.155 | 40.61 | 57.46 | 9.08 |
| 532 | 28.716 | 24.265 | 11.363 | 29.706 | 25.349 | 11.164 | 17.63 | 13.54 | 4.22 | 43.56 | 27.05 | 28.445 | 29.26 | 24 | 12.42 | 56.085 | 25.295 | 17.88 |
| 533 | 36.304 | 36.091 | 14.637 | 36.904 | 36.863 | 15.071 | 22.34 | 21.51 | 5.705 | 53.5 | 7.525 | 37.735 | 35.66 | 33.605 | 16.395 | 64.645 | 11.275 | 22.325 |
| 534 | 40.963 | 43.743 | 16.574 | 41.496 | 44.192 | 17.356 | 28.14 | 32.145 | 7.265 | 63.46 | -10.835 | 48.01 | 40.375 | 40.57 | 18.475 | 69.87 | 3.94 | 26.605 |
| 535 | 43.885 | 48.062 | 17.555 | 44.432 | 48.366 | 18.560 | 31.385 | 36.845 | 8.31 | 67.16 | -14.495 | 50.315 | 42.16 | 43.5 | 18.87 | 71.885 | 0.65 | 29.22 |
| 536 | 46.046 | 51.772 | 18.380 | 46.734 | 51.949 | 19.579 | 33.765 | 41.27 | 9.435 | 70.365 | -19.85 | 51.825 | 42.845 | 45.23 | 19.02 | 73.03 | -2.27 | 30.915 |
| 537 | 19.281 | 10.982 | 9.994 | 20.331 | 11.356 | 9.141 | 13.93 | 8.03 | 5.6 | 34.04 | 46.645 | 4.7 | 20.915 | 11.46 | 7.925 | 40.34 | 57.58 | 5.56 |
| 538 | 30.437 | 25.637 | 18.044 | 31.381 | 26.760 | 18.485 | 19.16 | 14.83 | 9.875 | 45.405 | 27.095 | 7.31 | 29.89 | 24.17 | 16.685 | 56.24 | 26.96 | 7.185 |
| 539 | 39.399 | 38.429 | 25.439 | 39.261 | 38.337 | 25.650 | 23.855 | 22.72 | 12.43 | 54.78 | 8.795 | 15.62 | 37.66 | 34.64 | 24.215 | 65.46 | 14.33 | 7.54 |
| 540 | 44.790 | 46.728 | 29.755 | 44.183 | 45.656 | 29.600 | 30.81 | 34.105 | 15.56 | 65.045 | -7.5 | 25.035 | 43.205 | 42.885 | 28.365 | 71.47 | 5.535 | 10.705 |
| 541 | 47.738 | 51.135 | 31.927 | 47.003 | 49.561 | 31.589 | 33.82 | 38.11 | 18.09 | 68.1 | -9.905 | 24.405 | 45.835 | 46.89 | 30.44 | 74.11 | 1.755 | 11.935 |
| 542 | 50.387 | 54.915 | 33.960 | 49.563 | 52.889 | 33.435 | 36.275 | 41.22 | 20.635 | 70.325 | -11.155 | 22.83 | 47.89 | 49.375 | 30.89 | 75.675 | 0.78 | 13.925 |
| 543 | 15.877 | 9.030 | 4.258 | 15.805 | 8.391 | 1.678 | 10.795 | 6.585 | 1.485 | 30.845 | 39.075 | 28.395 | 20.48 | 12.52 | 4.73 | 42.03 | 48.185 | 22.935 |
| 544 | 31.717 | 24.324 | 1.153 | 34.805 | 27.895 | -0.691 | 14.725 | 11.925 | 2.26 | 41.095 | 21.145 | 38.16 | 25.96 | 22.385 | 3.37 | 54.43 | 19.28 | 52.56 |
| 545 | 29.066 | 29.880 | 4.182 | 30.846 | 32.029 | 4.325 | 18.4 | 18.835 | 2.89 | 50.495 | 1.24 | 49.2 | 32.575 | 32.51 | 3.77 | 63.755 | 4.45 | 66.005 |
| 546 | 32.506 | 36.187 | 4.479 | 35.099 | 39.340 | 5.349 | 22.535 | 27.845 | 3.66 | 59.745 | -18.515 | 59.815 | 37.455 | 40.59 | 4.315 | 69.875 | -5.365 | 73.24 |
| 547 | 34.758 | 39.988 | 4.596 | 37.934 | 43.838 | 5.921 | 25.265 | 32.82 | 3.895 | 64.01 | -24.935 | 65.665 | 38.185 | 42.67 | 4.52 | 71.325 | -9.24 | 74.61 |
| 548 | 37.040 | 43.559 | 4.717 | 40.775 | 48.082 | 6.487 | 27.26 | 36.385 | 4.095 | 66.815 | -28.8 | 69.285 | 40.52 | 46.78 | 4.585 | 74.04 | -13.615 | 78.91 |
| 549 | 17.008 | 9.956 | 7.201 | 17.398 | 9.923 | 5.492 | 10.83 | 6.62 | 1.925 | 30.92 | 38.965 | 23.725 | 21.415 | 12.905 | 8.595 | 42.62 | 50.125 | 6.945 |
| 550 | 26.163 | 22.669 | 11.877 | 26.908 | 23.459 | 11.680 | 14.595 | 11.955 | 4.245 | 41.145 | 20.165 | 24.14 | 27.56 | 23.195 | 13.355 | 55.265 | 22.16 | 13.885 |
| 551 | 32.932 | 33.245 | 14.920 | 33.489 | 33.780 | 15.175 | 18.585 | 18.63 | 5.48 | 50.25 | 3.25 | 33.245 | 34.15 | 33.015 | 17.385 | 64.17 | 8.19 | 19.205 |
| 552 | 37.722 | 40.926 | 16.960 | 38.398 | 41.302 | 17.547 | 23.91 | 28.27 | 7.72 | 60.13 | -14.015 | 40.46 | 39.33 | 41.22 | 19.04 | 70.33 | -1.305 | 26.16 |
| 553 | 39.461 | 44.244 | 17.907 | 40.394 | 44.640 | 18.681 | 25.505 | 31.575 | 8.205 | 62.985 | -19.495 | 43.51 | 42.51 | 45.315 | 20.06 | 73.095 | -3.51 | 28.795 |
| 554 | 41.399 | 47.692 | 18.198 | 42.706 | 48.243 | 19.237 | 27.36 | 34.8 | 8.655 | 65.595 | -23.13 | 46.35 | 41.43 | 45.19 | 19.85 | 73.005 | -6.4 | 29.085 |
| 555 | 17.839 | 10.592 | 10.549 | 18.689 | 11.102 | 9.885 | 11.67 | 6.925 | 5.765 | 31.64 | 41.995 | -0.245 | 21.065 | 12.725 | 10 | 42.34 | 49.64 | 1.63 |
| 556 | 27.775 | 23.781 | 17.915 | 28.508 | 24.662 | 18.202 | 16.675 | 13.335 | 9.78 | 43.265 | 23.14 | 3.925 | 28.28 | 23.065 | 16.775 | 55.125 | 25.575 | 5.05 |
| 557 | 35.532 | 35.383 | 24.414 | 35.664 | 35.463 | 24.567 | 21.53 | 21.025 | 12.42 | 52.975 | 6.045 | 12.535 | 36.28 | 34.225 | 25.405 | 65.13 | 11.225 | 4.835 |
| 558 | 41.017 | 43.295 | 29.235 | 41.076 | 42.914 | 29.235 | 26.46 | 29.46 | 15.36 | 61.185 | -7.775 | 18.875 | 43.605 | 44.435 | 31.025 | 72.5 | 2.265 | 8.235 |
| 559 | 43.964 | 47.587 | 31.827 | 44.136 | 47.017 | 31.744 | 28.665 | 33.045 | 17.725 | 64.2 | -11.975 | 18.48 | 44.215 | 45.89 | 31.485 | 73.465 | -0.095 | 9.195 |
| 560 | 46.379 | 51.306 | 33.366 | 46.743 | 50.585 | 33.258 | 31.195 | 36.955 | 19.555 | 67.245 | -15.55 | 19.75 | 43.625 | 46.485 | 30.4 | 73.845 | -3.475 | 11.54 |
| 561 | 14.295 | 9.810 | 5.656 | 14.660 | 10.086 | 4.450 | 6.72 | 4.645 | 1.5 | 25.69 | 26.055 | 19.3 | 16.29 | 12.04 | 6.285 | 41.28 | 29.49 | 13.96 |
| 562 | 19.583 | 18.176 | 6.956 | 20.351 | 18.754 | 6.647 | 8.52 | 8.31 | 2.205 | 34.62 | 4.52 | 27.475 | 22.26 | 20.22 | 10.77 | 52.08 | 13.27 | 15.93 |
| 563 | 22.917 | 24.573 | 4.188 | 24.486 | 26.056 | 4.227 | 10.66 | 12.77 | 2.74 | 42.42 | -11.81 | 36.415 | 26.965 | 29.625 | 5.66 | 61.325 | -6.335 | 51.435 |
| 564 | 25.876 | 30.256 | 4.260 | 28.423 | 32.901 | 4.813 | 13.85 | 20.14 | 3.51 | 51.99 | -31.185 | 47.42 | 28.295 | 33.135 | 4.1 | 64.265 | -13.725 | 64.855 |
| 565 | 27.100 | 32.939 | 4.225 | 30.311 | 36.330 | 5.076 | 14.99 | 23.74 | 3.775 | 55.83 | -40.745 | 52.29 | 28.705 | 34.555 | 4.38 | 65.4 | -16.995 | 65.17 |
| 566 | 28.785 | 36.120 | 4.181 | 32.778 | 40.388 | 5.387 | 16.5 | 26.98 | 4.04 | 58.955 | -45.485 | 56.075 | 28.535 | 35.025 | 4.275 | 65.765 | -19.235 | 66.415 |
| 567 | 14.115 | 9.126 | 7.706 | 14.508 | 9.581 | 6.629 | 6.685 | 4.535 | 2.085 | 25.37 | 27.105 | 12.63 | 17.825 | 12.775 | 9.925 | 42.42 | 32.995 | 1.995 |
| 568 | 21.715 | 19.911 | 12.603 | 22.326 | 20.512 | 12.493 | 8.89 | 8.47 | 4.515 | 34.945 | 6.305 | 11.89 | 23.87 | 21.12 | 14.39 | 53.075 | 16.195 | 7.345 |
| 569 | 27.091 | 28.715 | 15.678 | 27.994 | 29.461 | 15.920 | 11.045 | 13.04 | 6.115 | 42.825 | -10.74 | 17.41 | 29.645 | 30.81 | 17.995 | 62.34 | -0.23 | 14.675 |
| 570 | 30.673 | 34.681 | 16.975 | 32.160 | 35.828 | 17.572 | 14.62 | 20.355 | 7.36 | 52.235 | -27.5 | 28.27 | 32.085 | 35.27 | 19.01 | 65.945 | -6.775 | 18.665 |
| 571 | 32.432 | 37.856 | 17.862 | 34.441 | 39.399 | 18.734 | 16.025 | 23.085 | 8.32 | 55.16 | -31.845 | 29.595 | 32.39 | 36.76 | 19.085 | 67.085 | -10.61 | 20.5 |
| 572 | 34.255 | 41.151 | 18.726 | 36.931 | 43.205 | 19.933 | 17.12 | 25.76 | 9.26 | 57.805 | -37.12 | 30.775 | 32.85 | 37.875 | 19.48 | 67.91 | -12.57 | 21.08 |
| 573 | 15.017 | 9.737 | 10.969 | 15.603 | 10.400 | 10.534 | 7.57 | 4.855 | 5.545 | 26.315 | 31.71 | -8.36 | 18.075 | 13.165 | 11.885 | 42.99 | 31.8 | -3.1 |
| 574 | 23.077 | 20.753 | 17.812 | 23.613 | 21.373 | 17.994 | 10.305 | 9.245 | 9.375 | 36.45 | 11.21 | -6.445 | 24.155 | 20.835 | 18.49 | 52.755 | 18.8 | -2.945 |
| 575 | 29.424 | 30.251 | 23.991 | 30.216 | 31.027 | 24.383 | 13.29 | 14.755 | 11.785 | 45.3 | -5.945 | 1.13 | 31.47 | 31.31 | 26.39 | 62.75 | 4.735 | -0.995 |
| 576 | 33.742 | 36.975 | 28.088 | 35.379 | 38.438 | 28.814 | 16.465 | 20.91 | 14.065 | 52.85 | -19.375 | 7.815 | 34.44 | 36.46 | 29.585 | 66.85 | -2.455 | 0.775 |
| 577 | 35.729 | 40.298 | 29.836 | 38.071 | 42.353 | 30.840 | 18.63 | 24.995 | 16.49 | 57.07 | -25.915 | 9.05 | 36.28 | 39.805 | 30.54 | 69.31 | -6.84 | 3.5 |
| 578 | 37.887 | 43.804 | 32.023 | 41.184 | 46.701 | 33.410 | 19.305 | 26.67 | 18.09 | 58.67 | -29.34 | 8.135 | 36.195 | 40.44 | 30.06 | 69.765 | -9.065 | 5.045 |
| 579 | 10.944 | 9.714 | 7.136 | 11.475 | 10.188 | 6.837 | 2.99 | 3.04 | 1.6 | 20.205 | 1.075 | 8.71 | 9.915 | 8.585 | 6.495 | 35.165 | 13.7 | 2.495 |
| 580 | 13.708 | 14.573 | 7.996 | 14.550 | 15.226 | 7.938 | 3.9 | 5.37 | 2.155 | 27.765 | -17.025 | 16.135 | 12.84 | 12.935 | 8.31 | 42.66 | 2.455 | 8.075 |
| 581 | 15.528 | 19.358 | 7.348 | 17.514 | 21.372 | 7.686 | 4.55 | 8.22 | 2.54 | 34.44 | -36.665 | 24.285 | 15.76 | 20.015 | 11.07 | 51.85 | -19.1 | 14.585 |

**Table B-2 (CONTINUED)**

| | SM1(calculate) | | | SM2 (calculate) | | | SM2 (practical) | | | | | | mSM2 (practical) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Xc1 | Yc1 | Zc1 | Xc2 | Yc2 | Zc2 | Xc2 | Yc2 | Zc2 | L*c2 | a*c2 | b*c2 | Xc | Yc | Zc | L*c | a*c | b*c |
| 582 | 16.623 | 22.846 | 6.062 | 20.112 | 26.768 | 6.827 | 6.11 | 13.375 | 3.22 | 43.325 | -56.395 | 34.445 | 17.135 | 24.72 | 11.85 | 56.795 | -32.66 | 20.77 |
| 583 | 16.765 | 24.368 | 5.002 | 21.336 | 29.731 | 6.018 | 6.84 | 16.225 | 3.61 | 47.265 | -65.715 | 38.575 | 16.535 | 25.895 | 11.21 | 57.935 | -40.91 | 24.645 |
| 584 | 16.787 | 25.768 | 3.177 | 22.572 | 32.790 | 4.334 | 7.365 | 17.685 | 3.79 | 49.105 | -68.49 | 40.64 | 19.13 | 31.225 | 13.945 | 62.7 | -47.58 | 25.115 |
| 585 | 11.512 | 9.783 | 9.381 | 11.869 | 10.190 | 9.039 | 3.435 | 3.07 | 3.375 | 20.32 | 7.99 | -6.275 | 10.63 | 9.075 | 8.325 | 36.11 | 15.06 | -3.225 |
| 586 | 15.226 | 15.657 | 12.584 | 15.784 | 16.151 | 12.575 | 4.48 | 5.545 | 5.095 | 28.235 | -10.925 | -2.785 | 12.61 | 12.62 | 10.445 | 42.17 | 3.015 | -0.12 |
| 587 | 18.319 | 21.543 | 14.935 | 20.028 | 23.423 | 15.582 | 5.415 | 8.68 | 6.25 | 35.355 | -29.93 | 3.93 | 14.845 | 17.835 | 14.415 | 49.28 | -13.42 | 0.745 |
| 588 | 20.570 | 26.120 | 16.514 | 23.971 | 30.045 | 18.055 | 7.155 | 13.695 | 7.745 | 43.795 | -47.625 | 12.19 | 16.79 | 21.98 | 16.505 | 54 | -22.555 | 3.745 |
| 589 | 21.443 | 28.255 | 17.215 | 26.043 | 33.652 | 19.389 | 7.795 | 15.86 | 8.34 | 46.79 | -54.44 | 15.09 | 16.75 | 22.915 | 16.665 | 54.975 | -26.985 | 5.03 |
| 590 | 22.679 | 30.860 | 18.172 | 28.785 | 38.077 | 21.143 | 8.86 | 18.745 | 9.66 | 50.385 | -60.52 | 16.6 | 17.27 | 24.375 | 17.05 | 56.435 | -30.53 | 6.68 |
| 591 | 11.635 | 9.392 | 11.751 | 11.748 | 9.551 | 11.513 | 4.35 | 3.185 | 6.55 | 20.765 | 19.545 | -22.55 | 11.825 | 9.525 | 10.925 | 36.92 | 20.065 | -10.62 |
| 592 | 16.480 | 16.359 | 17.009 | 16.838 | 16.707 | 17.285 | 5.79 | 6.335 | 9.375 | 30.24 | -3.485 | -17.155 | 12.94 | 13.09 | 14.375 | 42.875 | 2.11 | -10.175 |
| 593 | 20.545 | 22.879 | 22.309 | 22.340 | 25.068 | 23.653 | 7.005 | 9.595 | 11.315 | 37.105 | -20.265 | -11.585 | 16.945 | 19.425 | 20.525 | 51.14 | -9.475 | -10.005 |
| 594 | 23.241 | 27.668 | 26.026 | 27.258 | 32.650 | 28.769 | 8.74 | 14.04 | 13.735 | 44.295 | -35.29 | -6.07 | 18.115 | 23.235 | 22.4 | 55.28 | -21.025 | -6.575 |
| 595 | 24.892 | 30.418 | 27.762 | 30.294 | 37.070 | 31.273 | 9.62 | 16.575 | 14.44 | 47.72 | -42.78 | -2.015 | 18.67 | 25.005 | 23.06 | 57.06 | -25.74 | -4.775 |
| 596 | 25.388 | 32.510 | 29.669 | 33.559 | 42.790 | 34.978 | 10.255 | 18.945 | 16.215 | 50.615 | -50.275 | -1.43 | 18.61 | 25.41 | 23.265 | 57.465 | -27.77 | -4.475 |
| 597 | 7.565 | 8.192 | 7.191 | 7.670 | 8.077 | 6.803 | 1.84 | 2.455 | 1.59 | 17.71 | -11.715 | 4.5 | 3.235 | 3.285 | 2.88 | 21.14 | 1.195 | -1.34 |
| 598 | 8.281 | 10.870 | 7.530 | 8.881 | 11.453 | 7.380 | 2.32 | 4.295 | 2.07 | 24.62 | -30.74 | 11.495 | 8.115 | 10.93 | 8.65 | 39.45 | -19.915 | 1.305 |
| 599 | 6.081 | 12.028 | 6.631 | 8.878 | 16.555 | 7.555 | 2.835 | 6.495 | 2.455 | 30.63 | -46.69 | 18.415 | 7.575 | 14.87 | 6.86 | 45.45 | -50.76 | 18.665 |
| 600 | 7.399 | 14.968 | 7.432 | 12.530 | 22.992 | 9.588 | 3.78 | 9.77 | 2.935 | 37.425 | -60.46 | 26.33 | 6.125 | 14.91 | 5.475 | 45.51 | -65.645 | 25.09 |
| 601 | 8.372 | 17.022 | 8.277 | 15.338 | 27.727 | 11.489 | 4.385 | 11.555 | 3.355 | 40.495 | -65.075 | 28.635 | 6.525 | 16.34 | 6.555 | 47.41 | -69.595 | 23.36 |
| 602 | 9.189 | 18.798 | 8.814 | 17.865 | 31.943 | 12.956 | 4.965 | 13.585 | 3.77 | 43.64 | -71.07 | 31.31 | 7.055 | 17.13 | 7.53 | 48.425 | -68.54 | 21.025 |
| 603 | 7.981 | 8.264 | 9.425 | 7.674 | 7.738 | 8.962 | 2.515 | 2.68 | 4.55 | 18.705 | -1.25 | -16.305 | 7.78 | 7.795 | 9.215 | 33.53 | 2.455 | -10.875 |
| 604 | 9.444 | 11.539 | 11.371 | 9.633 | 11.768 | 11.411 | 3.005 | 4.595 | 5.22 | 25.555 | -21.72 | -8.06 | 9.01 | 11.81 | 12.625 | 40.905 | -18.415 | -8.855 |
| 605 | 9.374 | 14.308 | 12.909 | 11.914 | 18.349 | 14.746 | 3.85 | 7.085 | 7.045 | 32 | -35.965 | -5.3 | 8.375 | 15.49 | 13.31 | 46.29 | -47.07 | -1.49 |
| 606 | 8.762 | 15.995 | 13.821 | 15.143 | 26.183 | 18.479 | 5.255 | 11.14 | 8.785 | 39.82 | -51.015 | 1.43 | 8.285 | 17.585 | 14.255 | 48.99 | -59.53 | 0.675 |
| 607 | 9.750 | 17.878 | 15.319 | 18.328 | 31.241 | 21.537 | 5.88 | 12.7 | 10.02 | 42.31 | -54.505 | 1.47 | 8.39 | 17.77 | 14.615 | 49.215 | -59.5 | 0.105 |
| 608 | 10.620 | 19.694 | 16.084 | 21.302 | 36.012 | 23.561 | 6.79 | 14.835 | 11.04 | 45.4 | -58.175 | 3.57 | 8.67 | 17.985 | 15.285 | 49.47 | -58.235 | -1.12 |
| 609 | 8.157 | 7.993 | 11.412 | 7.429 | 6.970 | 11.002 | 3.795 | 3.25 | 8.375 | 20.99 | 10.515 | -29.505 | 8.46 | 8.335 | 12.245 | 34.625 | 3.705 | -18.52 |
| 610 | 10.084 | 11.578 | 15.426 | 9.882 | 11.444 | 16.026 | 4.385 | 5.44 | 9.78 | 27.94 | -10.9 | -22.48 | 10.925 | 14.555 | 19.44 | 44.99 | -21.08 | -18.355 |
| 611 | 10.596 | 14.571 | 19.043 | 13.408 | 19.263 | 22.600 | 4.935 | 7.645 | 10.89 | 33.23 | -26.53 | -16.96 | 9.055 | 16.635 | 17.86 | 47.785 | -47.71 | -10.105 |
| 612 | 9.584 | 15.720 | 21.604 | 17.924 | 29.278 | 30.206 | 6.15 | 10.925 | 13.055 | 39.46 | -39.275 | -12.56 | 10.01 | 18.7 | 20.81 | 50.33 | -50.92 | -12 |
| 613 | 10.811 | 17.972 | 23.752 | 22.574 | 36.470 | 34.810 | 7.1 | 13.195 | 14.635 | 43.055 | -44.985 | -10.565 | 10.54 | 19.145 | 21.99 | 50.85 | -49.155 | -13.45 |
| 614 | 11.914 | 20.034 | 25.474 | 26.895 | 43.099 | 38.696 | 7.735 | 14.99 | 15.47 | 45.625 | -49.98 | -8.245 | 11.625 | 20.385 | 23.81 | 52.255 | -47.27 | -14.455 |

TABLE B-3 The $\Delta$ E of the print-out with the system model 1, the system model 2 and modified system model 2 profile

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 1 | 3.76 | 7.28 | 4.32 | 4.87 | 4.87 | 12.97 | 6.40 | 4.33 |
| 2 | 18.73 | 13.67 | 6.85 | 6.21 | 6.21 | 18.48 | 8.43 | 5.42 |
| 3 | 15.04 | 9.81 | 2.39 | 7.04 | 7.04 | 11.74 | 9.85 | 5.17 |
| 4 | 7.60 | 5.48 | 6.89 | 11.28 | 11.28 | 12.44 | 4.58 | 7.08 |
| 5 | 4.69 | 13.80 | 7.20 | 21.69 | 21.69 | 28.86 | 3.11 | 7.66 |
| 6 | 7.54 | 15.82 | 3.48 | 6.55 | 6.55 | 21.26 | 2.76 | 8.44 |
| 7 | 3.89 | 8.75 | 10.88 | 10.75 | 10.75 | 8.35 | 3.07 | 6.65 |
| 8 | 6.24 | 18.06 | 1.97 | 5.06 | 5.06 | 3.19 | 7.09 | 27.27 |
| 9 | 6.63 | 43.24 | 8.88 | 36.93 | 36.93 | 4.68 | 6.88 | 20.54 |
| 10 | 7.28 | 36.99 | 6.44 | 5.56 | 5.56 | 7.48 | 9.89 | 26.77 |
| 11 | 17.04 | 7.70 | 5.84 | 20.49 | 20.49 | 9.24 | 2.12 | 8.71 |
| 12 | 11.06 | 23.08 | 1.25 | 8.86 | 8.86 | 17.97 | 3.67 | 7.67 |
| 13 | 31.20 | 29.91 | 8.57 | 106.07 | 106.07 | 21.77 | 8.20 | 13.14 |
| 14 | 1.81 | 1.46 | 1.66 | 10.36 | 10.36 | 6.82 | 3.06 | 1.89 |
| 15 | 0.96 | 4.65 | 1.18 | 0.77 | 0.77 | 7.22 | 0.26 | 0.99 |
| 16 | 1.61 | 5.43 | 3.12 | 2.49 | 2.49 | 11.77 | 2.19 | 9.41 |
| 17 | 1.20 | 19.06 | 2.78 | 2.16 | 2.16 | 24.61 | 1.56 | 20.10 |
| 18 | 0.58 | 24.80 | 2.11 | 1.52 | 1.52 | 18.33 | 1.30 | 24.87 |
| 19 | 1.57 | 15.55 | 2.90 | 2.27 | 2.27 | 21.32 | 2.02 | 17.05 |
| 20 | 1.70 | 23.64 | 2.02 | 1.83 | 1.83 | 19.48 | 1.59 | 23.08 |
| 21 | 0.90 | 19.54 | 2.29 | 1.65 | 1.65 | 27.28 | 0.98 | 20.13 |
| 22 | 1.24 | 15.36 | 1.65 | 1.13 | 1.13 | 15.34 | 1.10 | 15.12 |
| 23 | 18.20 | 11.00 | 3.85 | 2.86 | 2.86 | 11.53 | 7.61 | 5.26 |
| 24 | 20.36 | 8.40 | 1.13 | 2.53 | 2.53 | 18.30 | 6.91 | 5.88 |
| 25 | 20.87 | 9.18 | 3.88 | 5.44 | 5.44 | 9.18 | 2.77 | 3.29 |
| 26 | 16.22 | 7.41 | 4.96 | 8.58 | 8.58 | 14.20 | 2.17 | 2.94 |
| 27 | 4.98 | 1.97 | 2.32 | 10.04 | 10.04 | 9.66 | 3.19 | 2.35 |
| 28 | 8.87 | 4.02 | 1.70 | 7.85 | 7.85 | 11.06 | 2.77 | 3.04 |
| 29 | 11.63 | 4.95 | 1.01 | 6.15 | 6.15 | 8.37 | 4.37 | 3.88 |
| 30 | 16.28 | 8.34 | 0.28 | 4.21 | 4.21 | 9.17 | 8.31 | 6.08 |
| 31 | 16.95 | 9.21 | 0.93 | 5.67 | 5.67 | 10.27 | 11.20 | 7.69 |
| 32 | 21.30 | 11.89 | 2.24 | 8.93 | 8.93 | 10.89 | 12.79 | 8.51 |
| 33 | 21.95 | 12.91 | 3.79 | 12.70 | 12.70 | 10.88 | 11.81 | 7.87 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 34 | 21.11 | 14.64 | 6.35 | 23.27 | 23.27 | 10.45 | 9.09 | 7.01 |
| 35 | 23.09 | 16.36 | 6.26 | 29.03 | 29.03 | 14.14 | 4.39 | 5.41 |
| 36 | 22.20 | 17.11 | 8.37 | 39.90 | 39.90 | 17.03 | 14.16 | 10.60 |
| 37 | 23.47 | 19.83 | 9.08 | 52.53 | 52.53 | 23.32 | 6.61 | 7.52 |
| 38 | 26.16 | 24.03 | 8.83 | 66.04 | 66.04 | 29.08 | 3.69 | 5.87 |
| 39 | 27.03 | 27.15 | 7.80 | 86.30 | 86.30 | 22.78 | 4.46 | 6.84 |
| 40 | 6.49 | 2.29 | 2.33 | 10.43 | 10.43 | 3.62 | 2.15 | 2.35 |
| 41 | 10.92 | 4.30 | 1.36 | 8.65 | 8.65 | 3.97 | 2.74 | 3.75 |
| 42 | 14.38 | 6.12 | 0.54 | 7.43 | 7.43 | 6.00 | 2.01 | 2.38 |
| 43 | 16.58 | 7.63 | 0.89 | 5.08 | 5.08 | 9.32 | 1.91 | 2.44 |
| 44 | 18.87 | 9.17 | 2.33 | 2.76 | 2.76 | 14.46 | 3.26 | 4.62 |
| 45 | 20.81 | 10.76 | 3.44 | 0.92 | 0.92 | 17.88 | 4.54 | 6.47 |
| 46 | 20.41 | 11.48 | 3.89 | 1.53 | 1.53 | 21.48 | 5.38 | 7.93 |
| 47 | 22.98 | 12.55 | 4.96 | 4.65 | 4.65 | 18.59 | 5.79 | 8.93 |
| 48 | 20.03 | 12.63 | 6.58 | 8.65 | 8.65 | 12.98 | 4.68 | 7.34 |
| 49 | 18.62 | 13.66 | 6.18 | 10.74 | 10.74 | 10.75 | 2.27 | 5.95 |
| 50 | 16.69 | 17.64 | 6.59 | 13.08 | 13.08 | 9.91 | 1.43 | 2.20 |
| 51 | 14.74 | 22.70 | 4.34 | 14.12 | 14.12 | 12.94 | 4.53 | 4.50 |
| 52 | 11.31 | 27.48 | 9.33 | 3.31 | 3.31 | 14.78 | 6.77 | 11.10 |
| 53 | 3.29 | 1.60 | 3.16 | 12.22 | 12.22 | 6.90 | 2.32 | 1.18 |
| 54 | 7.41 | 4.73 | 2.97 | 12.60 | 12.60 | 8.08 | 0.55 | 0.54 |
| 55 | 11.09 | 9.90 | 2.73 | 12.50 | 12.50 | 10.97 | 0.83 | 0.62 |
| 56 | 12.66 | 11.69 | 1.78 | 12.02 | 12.02 | 15.67 | 6.19 | 2.59 |
| 57 | 15.95 | 12.35 | 1.29 | 11.75 | 11.75 | 18.25 | 11.46 | 6.66 |
| 58 | 14.76 | 14.73 | 1.49 | 10.76 | 10.76 | 21.73 | 11.26 | 7.30 |
| 59 | 12.94 | 14.31 | 1.73 | 10.67 | 10.67 | 19.84 | 14.21 | 8.20 |
| 60 | 12.51 | 15.25 | 4.15 | 8.34 | 8.34 | 10.00 | 15.73 | 10.89 |
| 61 | 13.86 | 14.19 | 4.93 | 6.64 | 6.64 | 10.61 | 17.52 | 14.77 |
| 62 | 10.14 | 11.27 | 6.55 | 5.63 | 5.63 | 10.51 | 16.88 | 14.91 |
| 63 | 7.66 | 6.83 | 6.61 | 7.72 | 7.72 | 12.17 | 15.16 | 14.32 |
| 64 | 7.19 | 4.69 | 8.38 | 16.38 | 16.38 | 23.29 | 11.39 | 14.66 |
| 65 | 12.29 | 15.71 | 5.39 | 18.32 | 18.32 | 16.30 | 3.08 | 5.37 |
| 66 | 3.98 | 1.47 | 1.55 | 9.19 | 9.19 | 6.00 | 1.47 | 1.92 |
| 67 | 9.78 | 3.45 | 1.08 | 7.21 | 7.21 | 6.38 | 5.92 | 2.63 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 68 | 13.30 | 5.46 | 0.98 | 6.08 | 6.08 | 7.47 | 6.92 | 2.62 |
| 69 | 17.63 | 6.77 | 0.32 | 3.66 | 3.66 | 5.13 | 2.73 | 2.23 |
| 70 | 17.06 | 6.81 | 0.83 | 2.61 | 2.61 | 7.10 | 2.22 | 1.56 |
| 71 | 12.33 | 5.74 | 1.30 | 1.88 | 1.88 | 8.11 | 4.12 | 1.76 |
| 72 | 9.96 | 6.14 | 1.31 | 1.15 | 1.15 | 9.43 | 10.30 | 4.57 |
| 73 | 6.87 | 5.71 | 2.04 | 0.72 | 0.72 | 12.03 | 4.35 | 3.52 |
| 74 | 3.52 | 5.28 | 0.89 | 1.35 | 1.35 | 16.83 | 2.31 | 2.53 |
| 75 | 5.70 | 6.82 | 1.73 | 0.70 | 0.70 | 20.34 | 5.44 | 3.64 |
| 76 | 7.30 | 8.98 | 0.48 | 1.39 | 1.39 | 21.16 | 5.90 | 4.92 |
| 77 | 6.20 | 9.69 | 1.35 | 1.04 | 1.04 | 23.06 | 3.95 | 5.97 |
| 78 | 5.50 | 9.56 | 1.62 | 1.79 | 1.79 | 22.95 | 3.30 | 4.94 |
| 79 | 7.26 | 33.05 | 8.23 | 7.01 | 7.01 | 5.08 | 8.38 | 26.47 |
| 80 | 20.58 | 21.14 | 2.28 | 23.79 | 23.79 | 14.53 | 7.27 | 12.89 |
| 81 | 11.09 | 20.92 | 2.10 | 14.01 | 14.01 | 12.17 | 4.55 | 23.21 |
| 82 | 17.06 | 27.88 | 2.24 | 57.55 | 57.55 | 18.79 | 2.17 | 4.33 |
| 83 | 4.39 | 36.11 | 2.37 | 11.30 | 11.30 | 8.48 | 1.06 | 11.85 |
| 84 | 16.33 | 11.32 | 3.41 | 7.53 | 7.53 | 14.75 | 8.96 | 18.35 |
| 85 | 8.11 | 11.71 | 7.51 | 8.34 | 8.34 | 15.68 | 4.13 | 4.42 |
| 86 | 4.55 | 9.79 | 1.49 | 3.20 | 3.20 | 9.75 | 5.20 | 7.73 |
| 87 | 16.17 | 9.22 | 6.52 | 16.81 | 16.81 | 8.32 | 3.50 | 10.48 |
| 88 | 2.33 | 12.62 | 4.62 | 3.85 | 3.85 | 7.20 | 6.27 | 8.62 |
| 89 | 8.38 | 19.32 | 1.80 | 3.90 | 3.90 | 16.45 | 2.65 | 5.64 |
| 90 | 3.39 | 19.48 | 2.43 | 3.60 | 3.60 | 11.79 | 5.40 | 13.24 |
| 91 | 7.09 | 26.63 | 3.13 | 6.36 | 6.36 | 9.66 | 5.25 | 14.93 |
| 92 | 7.64 | 17.55 | 4.53 | 6.07 | 6.07 | 14.78 | 3.53 | 8.99 |
| 93 | 7.12 | 15.62 | 3.89 | 5.89 | 5.89 | 14.63 | 7.57 | 23.90 |
| 94 | 14.39 | 15.83 | 3.46 | 19.17 | 19.17 | 20.06 | 7.56 | 5.26 |
| 95 | 6.07 | 32.19 | 1.64 | 25.66 | 25.66 | 14.50 | 1.94 | 10.17 |
| 96 | 3.01 | 12.58 | 5.66 | 13.29 | 13.29 | 26.08 | 2.39 | 8.95 |
| 97 | 5.81 | 14.81 | 2.46 | 9.96 | 9.96 | 28.54 | 11.82 | 20.55 |
| 98 | 14.78 | 7.89 | 3.08 | 3.44 | 3.44 | 12.91 | 8.21 | 9.45 |
| 99 | 4.60 | 6.00 | 2.56 | 5.28 | 5.28 | 11.55 | 1.62 | 7.39 |
| 100 | 4.15 | 3.51 | 5.19 | 6.83 | 6.83 | 10.40 | 1.62 | 5.24 |
| 101 | 3.19 | 13.11 | 1.25 | 1.85 | 1.85 | 15.52 | 3.61 | 8.11 |

**Table B-3 (CONTINUED)**

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 102 | 9.63 | 14.13 | 4.18 | 6.24 | 6.24 | 11.62 | 2.90 | 3.98 |
| 103 | 10.93 | 15.06 | 4.33 | 7.07 | 7.07 | 9.82 | 3.29 | 3.88 |
| 104 | 6.59 | 28.49 | 3.84 | 4.46 | 4.46 | 10.09 | 7.53 | 19.84 |
| 105 | 4.32 | 18.05 | 8.66 | 9.86 | 9.86 | 8.12 | 7.72 | 9.76 |
| 106 | 8.87 | 7.84 | 3.05 | 4.45 | 4.45 | 13.84 | 6.30 | 3.40 |
| 107 | 4.38 | 13.49 | 5.83 | 9.27 | 9.27 | 20.59 | 1.89 | 7.40 |
| 108 | 4.42 | 23.95 | 8.39 | 9.73 | 9.73 | 7.85 | 6.88 | 14.33 |
| 109 | 20.05 | 9.81 | 0.41 | 1.77 | 1.77 | 8.14 | 7.66 | 3.86 |
| 110 | 17.49 | 8.91 | 2.46 | 1.63 | 1.63 | 10.60 | 9.58 | 5.88 |
| 111 | 1.96 | 4.10 | 4.98 | 5.58 | 5.58 | 13.34 | 6.14 | 7.69 |
| 112 | 5.34 | 8.43 | 8.27 | 9.25 | 9.25 | 15.92 | 6.06 | 18.62 |
| 113 | 15.99 | 11.57 | 2.63 | 1.76 | 1.76 | 13.72 | 6.65 | 4.70 |
| 114 | 8.31 | 13.98 | 9.39 | 9.82 | 9.82 | 19.20 | 7.38 | 19.08 |
| 115 | 17.34 | 10.44 | 2.07 | 1.68 | 1.68 | 9.39 | 5.24 | 6.12 |
| 116 | 4.89 | 12.03 | 5.68 | 6.81 | 6.81 | 9.67 | 4.47 | 3.48 |
| 117 | 6.85 | 14.44 | 9.20 | 9.62 | 9.62 | 16.21 | 7.20 | 18.15 |
| 118 | 6.14 | 12.48 | 0.54 | 0.84 | 0.84 | 19.20 | 2.60 | 4.63 |
| 119 | 0.79 | 3.03 | 2.24 | 1.60 | 1.60 | 6.35 | 1.32 | 5.27 |
| 120 | 5.73 | 13.14 | 1.64 | 1.91 | 1.91 | 17.54 | 0.40 | 2.00 |
| 121 | 6.04 | 13.75 | 1.20 | 1.00 | 1.00 | 18.15 | 0.61 | 3.41 |
| 122 | 4.21 | 11.67 | 1.60 | 1.08 | 1.08 | 11.11 | 1.38 | 5.60 |
| 123 | 1.08 | 5.26 | 2.56 | 1.91 | 1.91 | 6.57 | 1.70 | 7.48 |
| 124 | 3.29 | 15.25 | 3.74 | 3.12 | 3.12 | 9.26 | 2.22 | 10.99 |
| 125 | 1.93 | 12.28 | 3.30 | 2.58 | 2.58 | 5.97 | 1.17 | 10.40 |
| 126 | 1.41 | 7.65 | 2.89 | 2.25 | 2.25 | 8.14 | 1.99 | 9.94 |
| 127 | 5.50 | 15.07 | 3.84 | 8.82 | 8.82 | 17.46 | 2.57 | 4.24 |
| 128 | 13.87 | 9.29 | 1.74 | 5.93 | 5.93 | 9.65 | 8.58 | 4.21 |
| 129 | 7.20 | 21.11 | 9.93 | 9.28 | 9.28 | 6.21 | 8.38 | 19.21 |
| 130 | 7.91 | 9.75 | 2.50 | 4.49 | 4.49 | 10.61 | 4.34 | 4.16 |
| 131 | 4.63 | 7.06 | 3.33 | 1.31 | 1.31 | 20.78 | 4.18 | 1.99 |
| 132 | 3.95 | 9.23 | 3.48 | 2.07 | 2.07 | 23.33 | 8.88 | 6.44 |
| 133 | 5.40 | 11.30 | 2.36 | 2.26 | 2.26 | 25.61 | 3.91 | 6.14 |
| 134 | 0.48 | 2.66 | 1.53 | 0.90 | 0.90 | 6.91 | 0.48 | 1.68 |
| 135 | 5.71 | 8.15 | 0.77 | 2.88 | 2.88 | 15.87 | 0.95 | 2.77 |

**Table B-3 (CONTINUED)**

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 136 | 4.48 | 8.36 | 1.59 | 1.47 | 1.47 | 18.21 | 1.17 | 3.04 |
| 137 | 3.73 | 9.56 | 3.37 | 1.78 | 1.78 | 21.34 | 5.55 | 3.29 |
| 138 | 4.01 | 11.02 | 2.75 | 2.04 | 2.04 | 20.78 | 6.47 | 6.90 |
| 139 | 6.10 | 11.48 | 1.48 | 1.67 | 1.67 | 23.96 | 2.38 | 5.24 |
| 140 | 0.42 | 1.84 | 1.95 | 1.30 | 1.30 | 6.38 | 0.96 | 3.74 |
| 141 | 4.17 | 12.15 | 0.75 | 1.69 | 1.69 | 19.89 | 4.19 | 4.22 |
| 142 | 4.12 | 11.66 | 1.16 | 0.82 | 0.82 | 17.98 | 5.34 | 4.18 |
| 143 | 5.56 | 11.86 | 1.27 | 1.24 | 1.24 | 20.94 | 2.57 | 3.06 |
| 144 | 17.72 | 7.94 | 0.82 | 1.80 | 1.80 | 7.42 | 2.49 | 3.65 |
| 145 | 6.57 | 8.60 | 2.60 | 4.72 | 4.72 | 11.65 | 1.77 | 3.26 |
| 146 | 6.11 | 11.15 | 3.61 | 6.09 | 6.09 | 18.48 | 3.07 | 8.22 |
| 147 | 6.75 | 14.12 | 6.85 | 8.26 | 8.26 | 14.65 | 0.52 | 2.67 |
| 148 | 5.79 | 15.25 | 8.20 | 8.30 | 8.30 | 7.15 | 5.86 | 9.32 |
| 149 | 23.92 | 8.97 | 2.97 | 5.21 | 5.21 | 8.20 | 4.39 | 3.17 |
| 150 | 14.97 | 7.37 | 3.11 | 3.26 | 3.26 | 10.34 | 10.96 | 4.05 |
| 151 | 8.75 | 7.30 | 4.18 | 2.40 | 2.40 | 17.54 | 6.84 | 3.33 |
| 152 | 4.25 | 8.61 | 3.65 | 2.10 | 2.10 | 21.56 | 8.08 | 5.22 |
| 153 | 4.43 | 10.54 | 2.46 | 2.17 | 2.17 | 23.48 | 5.53 | 7.09 |
| 154 | 0.76 | 3.42 | 1.24 | 0.74 | 0.74 | 6.50 | 0.02 | 0.41 |
| 155 | 12.78 | 7.40 | 0.75 | 1.34 | 1.34 | 8.16 | 8.57 | 4.64 |
| 156 | 8.23 | 7.22 | 0.43 | 1.43 | 1.43 | 9.56 | 7.38 | 4.45 |
| 157 | 4.64 | 43.13 | 2.58 | 8.41 | 8.41 | 14.62 | 1.21 | 6.15 |
| 158 | 7.17 | 41.05 | 3.26 | 1.65 | 1.65 | 21.18 | 6.57 | 33.58 |
| 159 | 16.02 | 11.29 | 1.19 | 1.25 | 1.25 | 15.58 | 9.82 | 6.10 |
| 160 | 9.11 | 8.21 | 0.32 | 4.64 | 4.64 | 22.31 | 8.44 | 5.03 |
| 161 | 11.68 | 11.64 | 1.41 | 2.11 | 2.11 | 18.86 | 10.56 | 6.41 |
| 162 | 4.92 | 19.75 | 2.77 | 4.02 | 4.02 | 5.66 | 2.86 | 10.01 |
| 163 | 7.55 | 42.22 | 2.80 | 17.89 | 17.89 | 8.34 | 1.71 | 8.82 |
| 164 | 7.15 | 38.19 | 3.55 | 1.01 | 1.01 | 3.44 | 7.37 | 28.72 |
| 165 | 23.18 | 13.06 | 5.83 | 2.74 | 2.74 | 11.50 | 9.62 | 17.04 |
| 166 | 8.60 | 25.75 | 2.45 | 0.57 | 0.57 | 17.82 | 5.48 | 16.54 |
| 167 | 26.25 | 28.59 | 7.00 | 46.87 | 46.87 | 10.16 | 3.45 | 5.45 |
| 168 | 13.44 | 4.83 | 2.73 | 9.30 | 9.30 | 4.68 | 2.06 | 1.99 |
| 169 | 19.72 | 7.15 | 1.29 | 6.31 | 6.31 | 5.50 | 4.70 | 2.35 |

**Table B-3 (CONTINUED)**

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 170 | 5.21 | 5.84 | 1.11 | 0.28 | 0.28 | 23.94 | 5.27 | 7.84 |
| 171 | 2.46 | 8.74 | 2.51 | 1.34 | 1.34 | 24.97 | 5.95 | 7.14 |
| 172 | 5.99 | 13.86 | 1.83 | 1.92 | 1.92 | 18.80 | 3.76 | 11.03 |
| 173 | 7.56 | 25.28 | 3.33 | 3.23 | 3.23 | 34.93 | 5.92 | 32.56 |
| 174 | 4.18 | 36.29 | 1.85 | 1.24 | 1.24 | 21.37 | 5.70 | 22.20 |
| 175 | 6.04 | 37.01 | 3.07 | 2.27 | 2.27 | 43.46 | 6.55 | 33.50 |
| 176 | 4.40 | 14.81 | 7.74 | 6.26 | 6.26 | 36.27 | 5.88 | 27.87 |
| 177 | 4.68 | 28.00 | 1.92 | 2.45 | 2.45 | 40.96 | 4.51 | 34.13 |
| 178 | 6.71 | 19.74 | 6.78 | 6.03 | 6.03 | 16.29 | 6.41 | 22.63 |
| 179 | 8.91 | 7.49 | 3.13 | 2.56 | 2.56 | 15.90 | 5.23 | 4.41 |
| 180 | 7.07 | 7.84 | 3.85 | 0.98 | 0.98 | 23.43 | 7.95 | 7.36 |
| 181 | 6.47 | 11.87 | 2.45 | 0.86 | 0.86 | 18.58 | 9.18 | 6.49 |
| 182 | 3.51 | 24.77 | 3.05 | 1.63 | 1.63 | 17.23 | 5.02 | 17.44 |
| 183 | 12.06 | 33.37 | 3.28 | 3.94 | 3.94 | 17.32 | 1.21 | 3.74 |
| 184 | 18.61 | 17.57 | 4.32 | 9.45 | 9.45 | 12.82 | 1.31 | 3.18 |
| 185 | 23.96 | 19.52 | 5.07 | 4.10 | 4.10 | 15.44 | 6.39 | 6.89 |
| 186 | 22.69 | 26.92 | 1.75 | 4.58 | 4.58 | 10.92 | 9.82 | 8.17 |
| 187 | 19.79 | 29.74 | 0.89 | 9.30 | 9.30 | 7.14 | 8.78 | 7.24 |
| 188 | 16.43 | 32.35 | 1.10 | 11.63 | 11.63 | 19.27 | 10.57 | 7.59 |
| 189 | 12.11 | 35.22 | 2.48 | 5.29 | 5.29 | 18.35 | 1.82 | 4.64 |
| 190 | 19.58 | 18.62 | 4.60 | 10.54 | 10.54 | 12.10 | 1.31 | 2.41 |
| 191 | 24.22 | 19.17 | 2.57 | 1.75 | 1.75 | 17.23 | 5.32 | 7.40 |
| 192 | 23.61 | 27.06 | 0.09 | 5.62 | 5.62 | 10.08 | 5.93 | 7.87 |
| 193 | 18.92 | 30.50 | 0.92 | 8.77 | 8.77 | 3.61 | 4.11 | 5.14 |
| 194 | 11.30 | 33.22 | 2.20 | 11.96 | 11.96 | 12.01 | 0.63 | 0.74 |
| 195 | 13.60 | 34.82 | 2.54 | 6.37 | 6.37 | 14.51 | 1.53 | 3.52 |
| 196 | 21.61 | 16.60 | 4.00 | 10.48 | 10.48 | 11.76 | 1.01 | 3.77 |
| 197 | 28.27 | 19.52 | 2.05 | 1.84 | 1.84 | 17.85 | 7.78 | 10.14 |
| 198 | 23.53 | 27.22 | 0.83 | 4.20 | 4.20 | 13.22 | 4.26 | 5.99 |
| 199 | 17.64 | 31.74 | 0.47 | 7.36 | 7.36 | 4.90 | 2.70 | 2.52 |
| 200 | 2.68 | 36.05 | 1.26 | 9.76 | 9.76 | 6.22 | 2.42 | 1.60 |
| 201 | 10.63 | 33.29 | 3.12 | 1.80 | 1.80 | 16.34 | 2.37 | 6.61 |
| 202 | 15.76 | 16.08 | 2.89 | 6.74 | 6.74 | 11.86 | 1.30 | 2.97 |
| 203 | 24.76 | 18.33 | 0.82 | 0.74 | 0.74 | 11.11 | 6.35 | 6.50 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 204 | 23.84 | 25.38 | 0.54 | 4.73 | 4.73 | 7.47 | 7.70 | 6.56 |
| 205 | 23.49 | 28.40 | 1.44 | 7.15 | 7.15 | 6.24 | 5.42 | 6.93 |
| 206 | 16.26 | 31.42 | 23.59 | 19.35 | 19.35 | 17.23 | 4.05 | 6.16 |
| 207 | 10.85 | 34.91 | 2.16 | 3.36 | 3.36 | 15.50 | 3.23 | 8.83 |
| 208 | 15.41 | 15.39 | 3.85 | 8.22 | 8.22 | 11.59 | 1.24 | 2.47 |
| 209 | 25.89 | 18.91 | 1.07 | 0.88 | 0.88 | 11.36 | 6.30 | 6.24 |
| 210 | 23.48 | 25.62 | 0.32 | 3.33 | 3.33 | 8.11 | 4.59 | 6.43 |
| 211 | 22.29 | 29.14 | 1.33 | 6.32 | 6.32 | 2.87 | 1.64 | 4.71 |
| 212 | 14.21 | 33.22 | 1.40 | 7.19 | 7.19 | 12.90 | 6.60 | 3.57 |
| 213 | 11.85 | 34.92 | 1.85 | 5.17 | 5.17 | 11.27 | 3.13 | 8.11 |
| 214 | 18.13 | 14.08 | 2.92 | 8.12 | 8.12 | 11.66 | 1.57 | 2.41 |
| 215 | 27.22 | 19.08 | 0.90 | 1.33 | 1.33 | 12.22 | 8.38 | 8.06 |
| 216 | 25.44 | 26.52 | 0.29 | 2.71 | 2.71 | 12.14 | 3.12 | 5.13 |
| 217 | 19.96 | 31.13 | 0.53 | 4.47 | 4.47 | 5.62 | 7.29 | 4.45 |
| 218 | 12.85 | 35.12 | 1.06 | 5.42 | 5.42 | 5.53 | 4.77 | 4.37 |
| 219 | 8.64 | 32.49 | 1.52 | 2.31 | 2.31 | 15.62 | 4.40 | 13.11 |
| 220 | 11.40 | 14.10 | 2.78 | 5.48 | 5.48 | 11.66 | 1.63 | 2.77 |
| 221 | 19.29 | 18.78 | 0.23 | 0.58 | 0.58 | 11.02 | 3.88 | 7.07 |
| 222 | 21.85 | 24.77 | 0.71 | 2.84 | 2.84 | 7.81 | 4.92 | 4.60 |
| 223 | 24.38 | 27.40 | 0.25 | 2.97 | 2.97 | 8.76 | 3.10 | 5.11 |
| 224 | 23.56 | 29.60 | 0.85 | 3.21 | 3.21 | 16.60 | 6.80 | 5.32 |
| 225 | 9.54 | 34.77 | 1.18 | 3.11 | 3.11 | 14.54 | 5.24 | 14.96 |
| 226 | 11.50 | 12.96 | 2.74 | 6.19 | 6.19 | 12.31 | 0.99 | 1.66 |
| 227 | 19.78 | 18.72 | 0.62 | 1.18 | 1.18 | 9.24 | 6.35 | 4.93 |
| 228 | 21.31 | 25.43 | 0.71 | 2.11 | 2.11 | 7.09 | 2.62 | 5.13 |
| 229 | 24.88 | 28.48 | 1.33 | 3.41 | 3.41 | 7.33 | 2.90 | 3.60 |
| 230 | 22.66 | 30.83 | 1.32 | 4.10 | 4.10 | 14.02 | 13.04 | 6.33 |
| 231 | 10.67 | 34.94 | 1.51 | 4.77 | 4.77 | 10.60 | 5.25 | 14.72 |
| 232 | 14.01 | 12.28 | 1.55 | 5.70 | 5.70 | 13.71 | 0.72 | 2.85 |
| 233 | 21.88 | 19.20 | 0.80 | 0.96 | 0.96 | 8.18 | 8.73 | 7.13 |
| 234 | 27.25 | 26.40 | 0.54 | 2.18 | 2.18 | 9.42 | 2.13 | 3.90 |
| 235 | 25.18 | 30.13 | 0.27 | 3.65 | 3.65 | 6.94 | 9.92 | 5.56 |
| 236 | 20.41 | 34.52 | 1.83 | 6.34 | 6.34 | 8.94 | 12.16 | 7.94 |
| 237 | 6.57 | 30.45 | 0.75 | 1.48 | 1.48 | 14.68 | 4.49 | 11.17 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 238 | 7.38 | 12.18 | 2.11 | 3.87 | 3.87 | 14.00 | 3.33 | 2.07 |
| 239 | 9.66 | 21.03 | 0.72 | 1.77 | 1.77 | 13.43 | 2.63 | 4.53 |
| 240 | 14.01 | 27.79 | 0.45 | 4.57 | 4.57 | 11.25 | 3.89 | 3.76 |
| 241 | 18.06 | 29.49 | 0.91 | 6.06 | 6.06 | 13.50 | 3.17 | 1.74 |
| 242 | 22.37 | 30.69 | 2.63 | 10.65 | 10.65 | 19.59 | 7.15 | 4.91 |
| 243 | 7.68 | 33.59 | 0.70 | 2.49 | 2.49 | 12.65 | 4.75 | 12.49 |
| 244 | 7.34 | 11.20 | 1.50 | 3.94 | 3.94 | 15.13 | 0.55 | 0.82 |
| 245 | 13.09 | 20.07 | 0.95 | 4.29 | 4.29 | 12.48 | 7.37 | 4.31 |
| 246 | 23.69 | 26.47 | 0.50 | 7.30 | 7.30 | 9.56 | 3.86 | 2.27 |
| 247 | 27.72 | 29.60 | 0.80 | 9.87 | 9.87 | 11.27 | 4.31 | 5.13 |
| 248 | 26.47 | 31.71 | 3.74 | 15.73 | 15.73 | 14.20 | 11.26 | 4.22 |
| 249 | 8.28 | 32.20 | 1.81 | 4.49 | 4.49 | 11.51 | 4.55 | 11.86 |
| 250 | 9.65 | 11.63 | 1.26 | 4.42 | 4.42 | 18.19 | 1.18 | 1.02 |
| 251 | 21.56 | 20.70 | 1.49 | 4.05 | 4.05 | 11.60 | 10.38 | 5.50 |
| 252 | 27.19 | 27.05 | 1.59 | 10.23 | 10.23 | 9.86 | 1.22 | 1.46 |
| 253 | 28.73 | 30.61 | 2.86 | 15.07 | 15.07 | 8.70 | 6.83 | 6.76 |
| 254 | 24.93 | 35.50 | 5.73 | 22.62 | 22.62 | 9.44 | 12.05 | 7.63 |
| 255 | 6.57 | 31.75 | 2.27 | 2.87 | 2.87 | 12.49 | 9.05 | 17.74 |
| 256 | 6.74 | 18.82 | 2.87 | 4.23 | 4.23 | 16.45 | 1.96 | 6.64 |
| 257 | 12.72 | 27.42 | 1.79 | 8.13 | 8.13 | 17.65 | 3.33 | 2.58 |
| 258 | 16.01 | 31.85 | 2.21 | 17.36 | 17.36 | 19.95 | 4.65 | 4.20 |
| 259 | 19.17 | 33.37 | 1.99 | 24.66 | 24.66 | 20.61 | 4.39 | 8.71 |
| 260 | 20.56 | 35.29 | 4.93 | 33.67 | 33.67 | 20.91 | 7.16 | 5.48 |
| 261 | 7.29 | 33.78 | 1.74 | 2.49 | 2.49 | 13.05 | 8.30 | 19.14 |
| 262 | 7.15 | 17.22 | 2.37 | 4.33 | 4.33 | 18.10 | 2.43 | 8.73 |
| 263 | 15.49 | 25.53 | 1.23 | 9.39 | 9.39 | 16.90 | 7.06 | 4.88 |
| 264 | 23.17 | 31.63 | 6.33 | 29.41 | 29.41 | 18.16 | 1.20 | 5.39 |
| 265 | 26.90 | 33.70 | 2.49 | 30.09 | 30.09 | 19.95 | 5.71 | 4.66 |
| 266 | 25.79 | 34.90 | 5.91 | 39.54 | 39.54 | 20.56 | 7.33 | 4.38 |
| 267 | 6.90 | 31.99 | 2.57 | 3.83 | 3.83 | 16.75 | 7.81 | 19.49 |
| 268 | 9.15 | 16.25 | 1.39 | 4.38 | 4.38 | 19.89 | 2.68 | 6.00 |
| 269 | 19.56 | 26.32 | 1.26 | 11.80 | 11.80 | 15.64 | 6.65 | 4.43 |
| 270 | 28.48 | 32.05 | 2.58 | 26.33 | 26.33 | 17.99 | 5.76 | 9.49 |
| 271 | 28.18 | 34.25 | 5.36 | 36.96 | 36.96 | 22.42 | 5.69 | 7.43 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 272 | 26.84 | 36.11 | 8.02 | 51.29 | 51.29 | 23.50 | 7.24 | 7.59 |
| 273 | 6.59 | 32.45 | 5.78 | 4.27 | 4.27 | 13.21 | 9.27 | 23.55 |
| 274 | 7.96 | 22.03 | 3.17 | 4.54 | 4.54 | 15.82 | 8.07 | 20.53 |
| 275 | 19.59 | 32.18 | 3.91 | 15.23 | 15.23 | 11.84 | 5.88 | 9.66 |
| 276 | 24.09 | 38.17 | 6.57 | 40.55 | 40.55 | 13.90 | 6.40 | 3.80 |
| 277 | 27.38 | 40.22 | 4.98 | 55.71 | 55.71 | 16.37 | 4.73 | 4.73 |
| 278 | 28.50 | 41.61 | 1.87 | 74.21 | 74.21 | 16.58 | 5.33 | 6.12 |
| 279 | 7.04 | 33.25 | 4.74 | 3.27 | 3.27 | 14.04 | 8.34 | 22.25 |
| 280 | 9.67 | 19.64 | 2.41 | 4.39 | 4.39 | 16.47 | 10.49 | 23.11 |
| 281 | 21.70 | 30.50 | 3.14 | 18.90 | 18.90 | 11.65 | 7.00 | 10.64 |
| 282 | 28.64 | 37.66 | 7.64 | 47.71 | 47.71 | 10.35 | 4.14 | 6.05 |
| 283 | 31.41 | 39.82 | 5.02 | 67.07 | 67.07 | 15.41 | 4.47 | 6.96 |
| 284 | 33.43 | 41.08 | 4.03 | 86.96 | 86.96 | 16.18 | 4.81 | 7.78 |
| 285 | 6.67 | 31.01 | 4.36 | 3.70 | 3.70 | 12.61 | 8.71 | 20.77 |
| 286 | 11.23 | 20.17 | 1.53 | 5.05 | 5.05 | 20.25 | 15.07 | 25.50 |
| 287 | 24.86 | 31.65 | 4.71 | 20.86 | 20.86 | 13.68 | 4.55 | 11.30 |
| 288 | 31.41 | 37.51 | 8.79 | 55.46 | 55.46 | 10.99 | 4.09 | 8.16 |
| 289 | 34.07 | 39.99 | 7.08 | 77.17 | 77.17 | 15.25 | 5.07 | 8.92 |
| 290 | 34.58 | 41.53 | 7.89 | 102.63 | 102.63 | 19.52 | 6.32 | 10.43 |
| 291 | 7.06 | 29.61 | 2.62 | 5.71 | 5.71 | 7.39 | 6.55 | 24.42 |
| 292 | 10.98 | 8.58 | 5.31 | 12.16 | 12.16 | 13.69 | 2.96 | 11.36 |
| 293 | 19.77 | 16.74 | 4.73 | 14.75 | 14.75 | 9.14 | 2.53 | 11.89 |
| 294 | 21.36 | 23.45 | 5.14 | 17.52 | 17.52 | 9.72 | 11.14 | 22.58 |
| 295 | 21.55 | 24.99 | 4.27 | 17.57 | 17.57 | 8.95 | 5.23 | 17.28 |
| 296 | 20.92 | 26.70 | 4.70 | 19.04 | 19.04 | 9.93 | 3.55 | 14.26 |
| 297 | 7.59 | 28.52 | 2.32 | 3.89 | 3.89 | 18.66 | 4.33 | 9.77 |
| 298 | 10.76 | 7.40 | 6.65 | 11.51 | 11.51 | 13.03 | 3.64 | 7.46 |
| 299 | 17.68 | 16.52 | 7.10 | 10.20 | 10.20 | 13.40 | 4.24 | 9.71 |
| 300 | 19.28 | 24.84 | 5.32 | 7.39 | 7.39 | 22.77 | 8.41 | 12.65 |
| 301 | 17.77 | 26.38 | 4.30 | 6.02 | 6.02 | 17.69 | 12.58 | 14.72 |
| 302 | 11.20 | 28.60 | 5.39 | 6.37 | 6.37 | 11.52 | 13.97 | 14.90 |
| 303 | 10.28 | 32.78 | 2.25 | 3.61 | 3.61 | 14.47 | 1.90 | 4.22 |
| 304 | 17.52 | 13.90 | 4.59 | 9.06 | 9.06 | 13.38 | 3.17 | 5.05 |
| 305 | 25.32 | 20.04 | 3.92 | 3.24 | 3.24 | 17.90 | 10.88 | 7.23 |

**Table B-3 (CONTINUED)**

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 306 | 24.15 | 26.39 | 2.98 | 3.17 | 3.17 | 12.49 | 14.20 | 9.89 |
| 307 | 21.42 | 28.70 | 2.49 | 6.34 | 6.34 | 7.58 | 15.16 | 9.08 |
| 308 | 14.86 | 31.71 | 2.91 | 8.44 | 8.44 | 10.78 | 14.87 | 10.73 |
| 309 | 6.18 | 28.71 | 2.89 | 5.64 | 5.64 | 8.45 | 4.53 | 18.00 |
| 310 | 8.23 | 7.52 | 3.36 | 7.76 | 7.76 | 14.13 | 3.96 | 12.40 |
| 311 | 17.26 | 15.72 | 2.65 | 9.35 | 9.35 | 8.26 | 3.56 | 13.73 |
| 312 | 23.03 | 22.74 | 2.24 | 10.51 | 10.51 | 15.87 | 14.25 | 23.54 |
| 313 | 22.65 | 24.78 | 1.92 | 11.17 | 11.17 | 10.77 | 9.85 | 20.01 |
| 314 | 23.05 | 25.85 | 2.46 | 13.22 | 13.22 | 9.48 | 5.93 | 17.39 |
| 315 | 5.29 | 27.21 | 1.53 | 2.73 | 2.73 | 17.50 | 3.62 | 7.31 |
| 316 | 7.45 | 4.99 | 5.91 | 8.95 | 8.95 | 11.63 | 3.91 | 7.69 |
| 317 | 17.46 | 16.53 | 6.40 | 7.87 | 7.87 | 10.64 | 4.46 | 9.79 |
| 318 | 20.22 | 23.11 | 3.90 | 4.62 | 4.62 | 16.99 | 7.92 | 13.11 |
| 319 | 19.25 | 25.57 | 3.82 | 4.28 | 4.28 | 13.18 | 7.81 | 12.03 |
| 320 | 16.78 | 27.34 | 3.84 | 4.02 | 4.02 | 10.13 | 8.45 | 12.88 |
| 321 | 8.85 | 30.54 | 1.99 | 2.23 | 2.23 | 13.15 | 2.51 | 7.37 |
| 322 | 14.69 | 13.73 | 4.09 | 7.05 | 7.05 | 11.19 | 3.68 | 5.20 |
| 323 | 25.48 | 19.23 | 2.74 | 1.63 | 1.63 | 12.85 | 10.59 | 8.09 |
| 324 | 25.48 | 24.18 | 1.41 | 3.65 | 3.65 | 9.70 | 12.52 | 9.30 |
| 325 | 23.35 | 26.81 | 1.24 | 5.71 | 5.71 | 4.51 | 13.88 | 9.49 |
| 326 | 19.42 | 29.35 | 1.00 | 7.29 | 7.29 | 10.81 | 11.02 | 9.32 |
| 327 | 4.03 | 26.90 | 2.19 | 4.57 | 4.57 | 6.48 | 3.57 | 10.90 |
| 328 | 5.96 | 8.33 | 1.68 | 4.45 | 4.45 | 11.99 | 2.08 | 11.07 |
| 329 | 11.86 | 16.72 | 1.91 | 4.96 | 4.96 | 7.43 | 3.47 | 13.86 |
| 330 | 16.47 | 23.62 | 2.37 | 5.97 | 5.97 | 13.66 | 10.63 | 19.69 |
| 331 | 19.13 | 25.43 | 2.53 | 7.06 | 7.06 | 14.04 | 16.72 | 24.08 |
| 332 | 24.79 | 26.82 | 2.53 | 9.12 | 9.12 | 12.37 | 11.97 | 21.42 |
| 333 | 3.72 | 25.65 | 1.04 | 1.87 | 1.87 | 14.16 | 4.11 | 9.16 |
| 334 | 3.63 | 2.12 | 5.91 | 7.55 | 7.55 | 9.52 | 3.77 | 7.82 |
| 335 | 9.39 | 16.48 | 5.36 | 5.91 | 5.91 | 9.20 | 4.32 | 12.00 |
| 336 | 16.20 | 23.93 | 3.28 | 3.58 | 3.58 | 11.74 | 6.22 | 12.36 |
| 337 | 16.82 | 25.51 | 3.22 | 3.62 | 3.62 | 10.09 | 4.63 | 11.51 |
| 338 | 18.90 | 27.15 | 3.77 | 3.96 | 3.96 | 9.38 | 4.08 | 12.30 |
| 339 | 7.39 | 29.48 | 1.35 | 1.24 | 1.24 | 11.66 | 3.91 | 13.05 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 340 | 11.43 | 13.67 | 3.08 | 5.12 | 5.12 | 10.72 | 3.61 | 4.36 |
| 341 | 19.53 | 18.82 | 0.86 | 0.39 | 0.39 | 11.76 | 7.23 | 6.98 |
| 342 | 21.22 | 23.82 | 0.53 | 2.82 | 2.82 | 8.48 | 8.90 | 7.91 |
| 343 | 22.76 | 26.21 | 1.06 | 3.08 | 3.08 | 6.75 | 8.31 | 7.37 |
| 344 | 22.41 | 27.84 | 1.02 | 3.64 | 3.64 | 12.94 | 4.04 | 7.66 |
| 345 | 1.73 | 21.65 | 3.73 | 2.82 | 2.82 | 8.43 | 5.52 | 8.74 |
| 346 | 3.00 | 10.44 | 4.39 | 5.02 | 5.02 | 11.73 | 4.87 | 5.23 |
| 347 | 7.36 | 20.42 | 2.90 | 2.01 | 2.01 | 10.60 | 4.83 | 9.90 |
| 348 | 13.64 | 25.56 | 3.82 | 3.29 | 3.29 | 16.43 | 3.06 | 14.07 |
| 349 | 15.76 | 27.73 | 4.03 | 4.63 | 4.63 | 15.95 | 3.79 | 15.67 |
| 350 | 19.22 | 28.85 | 3.75 | 7.80 | 7.80 | 15.98 | 9.01 | 20.93 |
| 351 | 1.01 | 20.24 | 1.60 | 0.79 | 0.79 | 12.44 | 5.62 | 5.45 |
| 352 | 0.95 | 4.44 | 6.43 | 7.13 | 7.13 | 12.02 | 7.03 | 7.45 |
| 353 | 3.19 | 19.31 | 4.97 | 5.57 | 5.57 | 12.25 | 7.86 | 9.82 |
| 354 | 8.10 | 25.98 | 3.68 | 4.96 | 4.96 | 12.85 | 3.66 | 9.08 |
| 355 | 13.33 | 27.13 | 3.22 | 5.14 | 5.14 | 14.01 | 4.60 | 10.81 |
| 356 | 16.66 | 28.21 | 4.83 | 7.39 | 7.39 | 13.11 | 2.82 | 8.05 |
| 357 | 4.34 | 27.23 | 0.96 | 1.93 | 1.93 | 11.06 | 4.21 | 11.85 |
| 358 | 7.39 | 12.59 | 3.19 | 4.31 | 4.31 | 10.09 | 2.28 | 2.70 |
| 359 | 8.53 | 20.48 | 1.08 | 1.65 | 1.65 | 12.21 | 4.09 | 5.16 |
| 360 | 12.91 | 26.28 | 1.17 | 2.68 | 2.68 | 11.22 | 4.11 | 4.18 |
| 361 | 17.17 | 27.79 | 1.60 | 4.17 | 4.17 | 10.56 | 6.74 | 4.28 |
| 362 | 21.91 | 28.37 | 2.91 | 6.62 | 6.62 | 11.41 | 3.55 | 4.22 |
| 363 | 7.48 | 14.46 | 8.76 | 9.19 | 9.19 | 20.19 | 7.76 | 17.40 |
| 364 | 4.00 | 15.40 | 7.17 | 8.11 | 8.11 | 17.72 | 6.44 | 19.07 |
| 365 | 4.09 | 30.51 | 3.37 | 6.58 | 6.58 | 23.91 | 9.48 | 21.91 |
| 366 | 8.55 | 34.41 | 1.06 | 8.51 | 8.51 | 29.92 | 12.84 | 19.75 |
| 367 | 10.26 | 36.79 | 2.01 | 10.35 | 10.35 | 29.03 | 17.28 | 23.69 |
| 368 | 12.78 | 37.25 | 4.89 | 13.50 | 13.50 | 29.95 | 20.40 | 25.75 |
| 369 | 4.32 | 15.11 | 7.53 | 7.94 | 7.94 | 17.97 | 6.58 | 15.74 |
| 370 | 6.38 | 16.00 | 7.15 | 7.97 | 7.97 | 18.18 | 3.89 | 4.86 |
| 371 | 3.57 | 28.96 | 5.83 | 9.26 | 9.26 | 20.45 | 4.27 | 9.56 |
| 372 | 5.93 | 32.52 | 4.12 | 11.70 | 11.70 | 26.53 | 3.38 | 10.19 |
| 373 | 8.63 | 34.77 | 4.75 | 15.53 | 15.53 | 28.21 | 3.90 | 10.16 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 374 | 9.06 | 36.28 | 6.31 | 20.79 | 20.79 | 28.91 | 3.75 | 9.05 |
| 375 | 4.87 | 27.61 | 5.17 | 5.61 | 5.61 | 14.02 | 6.88 | 19.72 |
| 376 | 5.26 | 17.39 | 3.69 | 4.72 | 4.72 | 14.46 | 2.30 | 4.62 |
| 377 | 7.76 | 27.75 | 1.86 | 6.38 | 6.38 | 18.44 | 3.30 | 4.27 |
| 378 | 8.72 | 32.09 | 2.89 | 13.78 | 13.78 | 21.44 | 6.46 | 4.64 |
| 379 | 10.57 | 34.27 | 4.16 | 18.84 | 18.84 | 22.89 | 8.12 | 6.34 |
| 380 | 13.14 | 34.66 | 5.26 | 26.44 | 26.44 | 24.62 | 5.20 | 7.73 |
| 381 | 3.00 | 10.39 | 10.31 | 10.18 | 10.18 | 9.10 | 3.04 | 7.12 |
| 382 | 3.30 | 37.47 | 7.52 | 8.84 | 8.84 | 8.73 | 7.49 | 17.09 |
| 383 | 5.61 | 53.23 | 1.95 | 10.56 | 10.56 | 9.36 | 0.97 | 9.51 |
| 384 | 7.45 | 60.23 | 2.73 | 19.80 | 19.80 | 9.93 | 2.59 | 9.51 |
| 385 | 8.09 | 62.32 | 4.72 | 27.51 | 27.51 | 8.39 | 4.40 | 15.38 |
| 386 | 9.45 | 61.96 | 6.20 | 34.31 | 34.31 | 8.42 | 6.04 | 19.70 |
| 387 | 5.95 | 19.63 | 9.06 | 8.41 | 8.41 | 7.27 | 8.36 | 17.64 |
| 388 | 2.24 | 27.56 | 7.05 | 8.25 | 8.25 | 8.53 | 7.66 | 8.07 |
| 389 | 5.99 | 41.41 | 2.92 | 13.26 | 13.26 | 10.42 | 2.46 | 16.67 |
| 390 | 9.33 | 48.88 | 0.48 | 24.57 | 24.57 | 13.42 | 2.17 | 8.18 |
| 391 | 10.16 | 50.70 | 1.95 | 32.64 | 32.64 | 11.32 | 1.96 | 4.17 |
| 392 | 9.72 | 52.02 | 4.22 | 41.44 | 41.44 | 10.70 | 1.08 | 1.63 |
| 393 | 5.59 | 29.09 | 7.28 | 6.05 | 6.05 | 2.58 | 8.27 | 23.22 |
| 394 | 6.58 | 22.91 | 3.79 | 4.74 | 4.74 | 9.58 | 6.48 | 14.49 |
| 395 | 14.93 | 34.31 | 3.48 | 12.06 | 12.06 | 11.93 | 5.07 | 20.44 |
| 396 | 18.79 | 39.60 | 5.87 | 29.59 | 29.59 | 17.05 | 5.26 | 11.01 |
| 397 | 20.39 | 41.47 | 3.86 | 42.45 | 42.45 | 17.63 | 4.36 | 7.64 |
| 398 | 20.44 | 42.27 | 2.33 | 56.06 | 56.06 | 18.23 | 1.46 | 2.86 |
| 399 | 10.07 | 36.69 | 4.84 | 3.09 | 3.09 | 21.14 | 4.64 | 12.35 |
| 400 | 14.10 | 17.40 | 3.68 | 2.07 | 2.07 | 15.74 | 3.93 | 4.27 |
| 401 | 23.20 | 16.71 | 4.55 | 4.67 | 4.67 | 15.42 | 8.59 | 5.78 |
| 402 | 24.30 | 21.24 | 4.77 | 6.79 | 6.79 | 13.06 | 9.73 | 6.17 |
| 403 | 26.49 | 23.92 | 4.63 | 7.54 | 7.54 | 10.18 | 11.71 | 6.42 |
| 404 | 26.36 | 25.74 | 2.34 | 6.03 | 6.03 | 8.09 | 8.57 | 6.10 |
| 405 | 9.70 | 36.09 | 3.96 | 1.66 | 1.66 | 18.07 | 5.18 | 14.59 |
| 406 | 13.54 | 19.36 | 2.18 | 2.53 | 2.53 | 12.75 | 2.72 | 4.90 |
| 407 | 20.73 | 16.04 | 2.34 | 2.16 | 2.16 | 11.46 | 5.15 | 3.59 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 408 | 24.09 | 21.10 | 2.96 | 4.49 | 4.49 | 10.05 | 8.00 | 4.76 |
| 409 | 26.43 | 23.77 | 2.52 | 4.77 | 4.77 | 6.78 | 8.68 | 4.69 |
| 410 | 24.36 | 25.48 | 2.68 | 5.51 | 5.51 | 6.13 | 5.62 | 3.47 |
| 411 | 10.23 | 36.29 | 3.31 | 0.38 | 0.38 | 16.59 | 5.23 | 14.71 |
| 412 | 14.46 | 16.69 | 1.93 | 1.88 | 1.88 | 11.24 | 5.84 | 4.37 |
| 413 | 21.42 | 15.60 | 3.15 | 2.61 | 2.61 | 10.79 | 10.86 | 6.77 |
| 414 | 24.82 | 21.19 | 3.31 | 4.26 | 4.26 | 8.51 | 12.03 | 7.18 |
| 415 | 26.20 | 24.31 | 2.44 | 3.83 | 3.83 | 6.09 | 9.29 | 3.99 |
| 416 | 21.19 | 26.46 | 1.20 | 2.92 | 2.92 | 5.64 | 2.39 | 2.33 |
| 417 | 9.27 | 35.54 | 4.73 | 3.48 | 3.48 | 21.35 | 5.23 | 11.87 |
| 418 | 12.54 | 17.67 | 3.42 | 1.96 | 1.96 | 15.42 | 2.91 | 4.82 |
| 419 | 18.78 | 16.42 | 5.61 | 5.48 | 5.48 | 17.04 | 4.69 | 4.08 |
| 420 | 19.18 | 22.55 | 5.67 | 6.60 | 6.60 | 14.69 | 3.83 | 4.63 |
| 421 | 20.18 | 25.04 | 6.30 | 7.55 | 7.55 | 13.45 | 7.90 | 4.66 |
| 422 | 21.88 | 26.28 | 3.52 | 5.03 | 5.03 | 10.81 | 8.74 | 4.62 |
| 423 | 8.90 | 35.48 | 3.77 | 2.01 | 2.01 | 19.40 | 5.18 | 13.22 |
| 424 | 10.75 | 17.51 | 2.06 | 1.83 | 1.83 | 12.62 | 2.23 | 5.47 |
| 425 | 15.31 | 16.24 | 2.36 | 1.96 | 1.96 | 12.78 | 1.16 | 2.56 |
| 426 | 17.39 | 22.74 | 3.28 | 3.64 | 3.64 | 10.77 | 7.34 | 5.06 |
| 427 | 18.08 | 25.24 | 3.77 | 4.42 | 4.42 | 8.59 | 8.37 | 4.20 |
| 428 | 20.25 | 26.41 | 2.31 | 3.36 | 3.36 | 7.34 | 7.01 | 3.02 |
| 429 | 9.37 | 34.63 | 3.32 | 1.06 | 1.06 | 16.00 | 6.44 | 15.27 |
| 430 | 11.95 | 15.17 | 2.40 | 1.32 | 1.32 | 11.32 | 2.62 | 3.10 |
| 431 | 17.79 | 16.62 | 4.13 | 3.21 | 3.21 | 12.19 | 10.62 | 7.56 |
| 432 | 17.96 | 22.51 | 3.90 | 3.48 | 3.48 | 9.91 | 12.31 | 7.19 |
| 433 | 21.31 | 25.25 | 3.25 | 2.91 | 2.91 | 8.71 | 9.88 | 3.94 |
| 434 | 23.32 | 27.14 | 1.38 | 1.90 | 1.90 | 7.33 | 3.51 | 2.11 |
| 435 | 8.29 | 34.95 | 3.35 | 2.37 | 2.37 | 21.51 | 3.33 | 14.01 |
| 436 | 11.63 | 16.96 | 2.60 | 1.92 | 1.92 | 15.18 | 2.10 | 4.09 |
| 437 | 16.67 | 17.39 | 5.08 | 4.55 | 4.55 | 17.19 | 1.98 | 4.80 |
| 438 | 16.56 | 22.87 | 5.41 | 4.97 | 4.97 | 14.15 | 1.84 | 4.11 |
| 439 | 17.27 | 25.64 | 5.79 | 4.88 | 4.88 | 13.79 | 8.82 | 4.69 |
| 440 | 21.54 | 26.30 | 3.54 | 2.48 | 2.48 | 12.94 | 9.70 | 5.71 |
| 441 | 8.20 | 35.15 | 2.89 | 1.58 | 1.58 | 19.89 | 3.88 | 15.94 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 442 | 10.57 | 16.85 | 1.94 | 1.76 | 1.76 | 12.99 | 1.73 | 4.55 |
| 443 | 13.59 | 16.82 | 2.05 | 1.26 | 1.26 | 13.31 | 3.86 | 2.99 |
| 444 | 13.92 | 22.96 | 3.31 | 2.23 | 2.23 | 10.55 | 8.22 | 4.69 |
| 445 | 17.00 | 25.30 | 4.02 | 2.71 | 2.71 | 10.01 | 11.23 | 5.32 |
| 446 | 19.28 | 27.14 | 2.83 | 2.05 | 2.05 | 9.91 | 6.70 | 2.55 |
| 447 | 8.56 | 35.29 | 2.26 | 0.85 | 0.85 | 17.18 | 4.18 | 16.84 |
| 448 | 10.95 | 14.42 | 2.12 | 1.07 | 1.07 | 12.61 | 3.34 | 3.03 |
| 449 | 14.57 | 16.87 | 3.41 | 1.81 | 1.81 | 12.94 | 11.98 | 8.61 |
| 450 | 18.37 | 22.50 | 3.66 | 1.56 | 1.56 | 10.09 | 13.94 | 6.63 |
| 451 | 23.93 | 24.56 | 2.83 | 1.64 | 1.64 | 9.99 | 10.36 | 4.48 |
| 452 | 25.95 | 26.96 | 1.00 | 4.45 | 4.45 | 9.38 | 4.10 | 1.49 |
| 453 | 6.36 | 33.83 | 2.59 | 2.13 | 2.13 | 23.02 | 7.22 | 24.38 |
| 454 | 7.27 | 13.45 | 2.66 | 2.01 | 2.01 | 18.55 | 1.20 | 3.21 |
| 455 | 11.04 | 18.70 | 5.17 | 3.53 | 3.53 | 20.21 | 5.08 | 5.22 |
| 456 | 14.29 | 24.47 | 5.89 | 2.80 | 2.80 | 20.57 | 5.04 | 4.74 |
| 457 | 16.94 | 26.87 | 5.54 | 2.76 | 2.76 | 19.50 | 6.11 | 4.06 |
| 458 | 17.71 | 28.51 | 3.62 | 4.29 | 4.29 | 18.03 | 10.28 | 4.58 |
| 459 | 6.61 | 35.79 | 1.65 | 1.38 | 1.38 | 22.10 | 8.08 | 26.61 |
| 460 | 6.80 | 14.87 | 1.88 | 1.78 | 1.78 | 16.74 | 1.75 | 4.91 |
| 461 | 10.40 | 18.57 | 2.09 | 2.12 | 2.12 | 15.94 | 6.20 | 4.07 |
| 462 | 15.91 | 24.15 | 3.45 | 2.94 | 2.94 | 16.09 | 8.50 | 5.21 |
| 463 | 18.55 | 26.14 | 3.43 | 4.82 | 4.82 | 16.56 | 9.84 | 4.19 |
| 464 | 19.00 | 28.56 | 3.03 | 8.68 | 8.68 | 14.58 | 5.67 | 2.40 |
| 465 | 6.45 | 34.54 | 1.11 | 1.59 | 1.59 | 17.36 | 8.96 | 25.92 |
| 466 | 7.27 | 13.60 | 1.63 | 1.08 | 1.08 | 15.83 | 3.45 | 4.55 |
| 467 | 15.53 | 19.05 | 3.51 | 1.04 | 1.04 | 16.11 | 11.09 | 7.83 |
| 468 | 18.32 | 23.81 | 3.15 | 3.89 | 3.89 | 14.99 | 14.59 | 6.75 |
| 469 | 20.72 | 26.14 | 2.31 | 7.04 | 7.04 | 14.90 | 11.63 | 4.93 |
| 470 | 24.37 | 28.06 | 1.12 | 11.91 | 11.91 | 16.30 | 4.17 | 1.86 |
| 471 | 6.65 | 36.14 | 1.99 | 2.01 | 2.01 | 20.67 | 4.66 | 21.19 |
| 472 | 7.05 | 18.42 | 2.99 | 4.88 | 4.88 | 17.81 | 3.58 | 9.42 |
| 473 | 13.74 | 25.12 | 3.43 | 12.19 | 12.19 | 21.57 | 8.57 | 6.01 |
| 474 | 18.13 | 30.32 | 3.06 | 12.32 | 12.32 | 24.28 | 9.72 | 7.93 |
| 475 | 19.90 | 31.91 | 3.18 | 17.08 | 17.08 | 25.49 | 15.12 | 10.47 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 476 | 19.16 | 32.35 | 42.09 | 42.20 | 42.20 | 28.39 | 14.51 | 13.30 |
| 477 | 6.95 | 36.26 | 13.03 | 13.84 | 13.84 | 18.69 | 4.59 | 21.03 |
| 478 | 7.42 | 18.78 | 10.99 | 16.23 | 16.23 | 16.29 | 3.84 | 11.65 |
| 479 | 13.28 | 24.11 | 5.62 | 17.18 | 17.18 | 18.68 | 7.49 | 8.69 |
| 480 | 19.21 | 28.93 | 1.62 | 18.08 | 18.08 | 19.39 | 10.28 | 10.83 |
| 481 | 21.04 | 30.82 | 0.99 | 22.67 | 22.67 | 22.12 | 12.68 | 14.26 |
| 482 | 21.17 | 32.10 | 43.92 | 43.98 | 43.98 | 23.55 | 8.94 | 16.88 |
| 483 | 6.72 | 35.02 | 14.29 | 15.50 | 15.50 | 14.11 | 4.45 | 19.92 |
| 484 | 8.35 | 17.86 | 11.89 | 18.43 | 18.43 | 17.87 | 5.20 | 10.05 |
| 485 | 16.60 | 24.51 | 4.71 | 18.89 | 18.89 | 18.20 | 9.42 | 8.33 |
| 486 | 21.23 | 29.52 | 4.24 | 10.50 | 10.50 | 17.91 | 11.33 | 11.40 |
| 487 | 22.93 | 31.30 | 3.08 | 17.13 | 17.13 | 19.67 | 6.86 | 18.11 |
| 488 | 25.42 | 32.26 | 1.48 | 24.34 | 24.34 | 22.96 | 4.37 | 11.42 |
| 489 | 6.74 | 36.04 | 4.73 | 2.73 | 2.73 | 7.03 | 8.17 | 27.40 |
| 490 | 9.79 | 23.55 | 4.66 | 3.36 | 3.36 | 14.19 | 9.03 | 19.68 |
| 491 | 19.30 | 31.34 | 6.37 | 5.46 | 5.46 | 17.57 | 6.55 | 25.72 |
| 492 | 23.92 | 36.74 | 12.57 | 13.37 | 13.37 | 16.78 | 7.45 | 15.91 |
| 493 | 25.85 | 38.05 | 11.84 | 21.31 | 21.31 | 18.67 | 6.56 | 11.88 |
| 494 | 26.49 | 39.10 | 9.34 | 31.99 | 31.99 | 19.27 | 2.85 | 6.18 |
| 495 | 7.21 | 37.49 | 3.87 | 1.72 | 1.72 | 4.82 | 7.67 | 27.80 |
| 496 | 9.91 | 21.05 | 4.07 | 2.23 | 2.23 | 13.99 | 8.98 | 21.28 |
| 497 | 19.21 | 29.00 | 7.09 | 4.89 | 4.89 | 16.23 | 4.05 | 21.49 |
| 498 | 25.07 | 34.86 | 11.59 | 16.88 | 16.88 | 12.74 | 2.31 | 7.02 |
| 499 | 27.28 | 36.99 | 10.66 | 27.00 | 27.00 | 13.68 | 1.98 | 2.86 |
| 500 | 27.86 | 38.39 | 8.12 | 39.09 | 39.09 | 12.61 | 3.33 | 3.65 |
| 501 | 6.71 | 36.08 | 4.10 | 1.82 | 1.82 | 5.23 | 7.45 | 27.32 |
| 502 | 10.38 | 20.90 | 3.75 | 1.63 | 1.63 | 21.04 | 6.06 | 18.19 |
| 503 | 21.97 | 29.96 | 8.24 | 4.52 | 4.52 | 19.29 | 2.93 | 16.60 |
| 504 | 26.64 | 35.04 | 11.80 | 19.97 | 19.97 | 11.83 | 2.57 | 6.57 |
| 505 | 28.03 | 37.30 | 9.92 | 32.42 | 32.42 | 10.71 | 2.45 | 5.51 |
| 506 | 29.23 | 38.10 | 7.38 | 46.32 | 46.32 | 11.42 | 4.08 | 6.41 |
| 507 | 6.07 | 33.08 | 3.69 | 4.76 | 4.76 | 7.39 | 2.09 | 11.06 |
| 508 | 9.17 | 8.10 | 4.02 | 3.42 | 3.42 | 15.94 | 1.56 | 6.71 |
| 509 | 19.37 | 16.63 | 7.49 | 2.72 | 2.72 | 17.86 | 8.31 | 9.78 |

**Table B-3 (CONTINUED)**

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 510 | 24.92 | 22.16 | 9.22 | 2.96 | 2.96 | 8.77 | 5.99 | 9.07 |
| 511 | 28.06 | 25.69 | 11.08 | 4.23 | 4.23 | 11.24 | 3.74 | 9.40 |
| 512 | 28.54 | 26.28 | 10.35 | 3.09 | 3.09 | 11.67 | 5.61 | 13.54 |
| 513 | 5.66 | 31.09 | 2.92 | 3.23 | 3.23 | 19.82 | 2.21 | 5.94 |
| 514 | 5.77 | 6.81 | 1.09 | 2.65 | 2.65 | 13.28 | 2.45 | 8.20 |
| 515 | 14.38 | 15.14 | 1.69 | 1.28 | 1.28 | 14.90 | 9.34 | 16.51 |
| 516 | 19.01 | 20.26 | 3.12 | 1.96 | 1.96 | 15.87 | 10.83 | 16.21 |
| 517 | 22.14 | 23.29 | 4.28 | 3.56 | 3.56 | 17.89 | 12.40 | 15.53 |
| 518 | 22.27 | 24.45 | 4.09 | 3.86 | 3.86 | 18.49 | 10.48 | 15.43 |
| 519 | 7.56 | 33.69 | 2.51 | 2.00 | 2.00 | 14.15 | 2.95 | 10.58 |
| 520 | 10.98 | 11.69 | 1.56 | 1.89 | 1.89 | 12.67 | 5.31 | 4.95 |
| 521 | 20.85 | 16.19 | 2.09 | 2.22 | 2.22 | 13.64 | 11.24 | 8.38 |
| 522 | 24.28 | 20.74 | 2.46 | 4.42 | 4.42 | 15.52 | 12.09 | 9.00 |
| 523 | 25.75 | 22.84 | 2.80 | 5.61 | 5.61 | 14.47 | 13.55 | 9.47 |
| 524 | 22.46 | 24.11 | 1.45 | 5.01 | 5.01 | 12.33 | 8.06 | 7.73 |
| 525 | 5.13 | 31.75 | 3.80 | 4.56 | 4.56 | 11.73 | 1.07 | 7.30 |
| 526 | 8.86 | 7.62 | 4.74 | 3.89 | 3.89 | 15.79 | 2.76 | 4.94 |
| 527 | 17.03 | 16.11 | 8.24 | 4.61 | 4.61 | 19.37 | 9.14 | 8.26 |
| 528 | 21.17 | 21.96 | 10.79 | 5.72 | 5.72 | 11.83 | 7.53 | 10.35 |
| 529 | 23.25 | 24.67 | 11.39 | 5.41 | 5.41 | 12.18 | 6.77 | 10.02 |
| 530 | 25.42 | 26.16 | 11.19 | 4.43 | 4.43 | 14.75 | 3.14 | 10.39 |
| 531 | 4.17 | 28.14 | 2.67 | 2.63 | 2.63 | 19.31 | 1.06 | 4.91 |
| 532 | 3.96 | 4.36 | 2.02 | 2.97 | 2.97 | 12.64 | 3.04 | 7.49 |
| 533 | 10.88 | 15.44 | 1.72 | 1.42 | 1.42 | 14.92 | 4.78 | 13.95 |
| 534 | 12.77 | 21.09 | 3.48 | 2.97 | 2.97 | 15.45 | 6.84 | 15.11 |
| 535 | 15.08 | 24.24 | 3.75 | 3.47 | 3.47 | 14.33 | 8.70 | 16.04 |
| 536 | 16.40 | 25.54 | 4.15 | 3.89 | 3.89 | 14.94 | 11.38 | 16.35 |
| 537 | 6.60 | 32.07 | 2.11 | 1.91 | 1.91 | 14.83 | 2.97 | 9.63 |
| 538 | 9.54 | 12.05 | 0.97 | 1.77 | 1.77 | 12.40 | 2.53 | 3.64 |
| 539 | 17.25 | 16.80 | 2.49 | 2.56 | 2.56 | 15.66 | 6.73 | 8.49 |
| 540 | 19.00 | 21.52 | 3.25 | 4.45 | 4.45 | 16.88 | 7.50 | 7.76 |
| 541 | 19.02 | 23.71 | 2.94 | 4.63 | 4.63 | 14.71 | 7.67 | 7.51 |
| 542 | 21.52 | 24.86 | 2.81 | 4.95 | 4.95 | 12.76 | 9.39 | 8.59 |
| 543 | 3.75 | 29.25 | 3.41 | 3.45 | 3.45 | 14.14 | 3.67 | 10.52 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 544 | 6.86 | 6.05 | 6.83 | 11.50 | 11.50 | 17.18 | 0.74 | 4.47 |
| 545 | 14.70 | 16.87 | 8.48 | 5.73 | 5.73 | 20.21 | 4.65 | 9.18 |
| 546 | 18.45 | 22.43 | 11.09 | 6.91 | 6.91 | 16.36 | 5.02 | 9.19 |
| 547 | 21.10 | 25.44 | 11.42 | 6.27 | 6.27 | 15.72 | 7.42 | 8.53 |
| 548 | 24.64 | 26.46 | 11.31 | 5.20 | 5.20 | 16.10 | 6.90 | 8.71 |
| 549 | 3.08 | 26.62 | 2.17 | 1.82 | 1.82 | 20.33 | 4.08 | 5.14 |
| 550 | 3.56 | 3.01 | 2.12 | 2.43 | 2.43 | 13.14 | 3.99 | 8.99 |
| 551 | 9.25 | 15.96 | 2.21 | 1.91 | 1.91 | 15.56 | 4.20 | 13.68 |
| 552 | 11.25 | 22.39 | 3.45 | 2.95 | 2.95 | 14.74 | 3.62 | 10.75 |
| 553 | 12.69 | 25.86 | 4.93 | 4.25 | 4.25 | 15.78 | 3.85 | 11.68 |
| 554 | 14.84 | 26.53 | 4.45 | 3.52 | 3.52 | 16.12 | 6.81 | 13.35 |
| 555 | 5.47 | 30.44 | 1.61 | 1.23 | 1.23 | 15.30 | 2.62 | 9.28 |
| 556 | 8.95 | 12.11 | 0.98 | 1.41 | 1.41 | 12.57 | 2.06 | 4.60 |
| 557 | 14.47 | 16.94 | 3.02 | 2.81 | 2.81 | 15.23 | 3.18 | 6.99 |
| 558 | 13.69 | 21.73 | 3.19 | 3.43 | 3.43 | 15.58 | 1.41 | 5.21 |
| 559 | 15.55 | 24.17 | 2.86 | 3.21 | 3.21 | 14.77 | 4.19 | 6.63 |
| 560 | 15.74 | 25.64 | 1.59 | 1.98 | 1.98 | 14.22 | 7.68 | 6.18 |
| 561 | 2.07 | 22.90 | 3.22 | 2.20 | 2.20 | 19.98 | 5.16 | 18.37 |
| 562 | 3.50 | 5.84 | 3.20 | 2.59 | 2.59 | 22.50 | 6.92 | 26.11 |
| 563 | 10.07 | 19.54 | 7.60 | 5.54 | 5.54 | 26.23 | 1.10 | 3.68 |
| 564 | 14.08 | 24.58 | 9.25 | 5.63 | 5.63 | 23.41 | 5.77 | 8.35 |
| 565 | 16.94 | 27.82 | 10.27 | 5.61 | 5.61 | 25.71 | 8.07 | 7.62 |
| 566 | 20.22 | 29.68 | 10.52 | 4.65 | 4.65 | 26.88 | 11.47 | 8.26 |
| 567 | 1.18 | 22.34 | 1.73 | 0.91 | 0.91 | 22.12 | 6.15 | 14.11 |
| 568 | 0.99 | 3.51 | 3.61 | 4.05 | 4.05 | 17.48 | 6.49 | 9.78 |
| 569 | 4.57 | 19.26 | 2.55 | 2.81 | 2.81 | 20.50 | 5.54 | 10.74 |
| 570 | 8.16 | 24.52 | 2.80 | 2.16 | 2.16 | 20.80 | 3.67 | 11.61 |
| 571 | 11.16 | 26.85 | 3.47 | 2.39 | 2.39 | 21.48 | 4.88 | 12.01 |
| 572 | 13.90 | 28.50 | 2.92 | 3.03 | 3.03 | 23.02 | 6.43 | 13.64 |
| 573 | 3.42 | 27.56 | 0.91 | 1.22 | 1.22 | 18.74 | 4.77 | 18.61 |
| 574 | 5.75 | 11.55 | 1.00 | 1.71 | 1.71 | 16.63 | 1.68 | 2.09 |
| 575 | 8.82 | 18.78 | 2.65 | 1.57 | 1.57 | 18.94 | 1.25 | 5.32 |
| 576 | 10.94 | 23.26 | 3.27 | 1.17 | 1.17 | 20.46 | 2.91 | 6.09 |
| 577 | 11.78 | 26.55 | 2.81 | 0.88 | 0.88 | 21.18 | 2.64 | 4.26 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 578 | 12.96 | 27.86 | 1.56 | 3.04 | 3.04 | 21.75 | 5.73 | 5.02 |
| 579 | 5.79 | 15.56 | 6.82 | 7.15 | 7.15 | 26.87 | 5.32 | 18.80 |
| 580 | 2.47 | 15.24 | 4.60 | 5.13 | 5.13 | 23.30 | 4.52 | 23.90 |
| 581 | 5.91 | 29.07 | 3.38 | 2.70 | 2.70 | 27.55 | 6.04 | 26.58 |
| 582 | 9.28 | 33.60 | 4.49 | 1.52 | 1.52 | 29.43 | 6.08 | 23.19 |
| 583 | 10.51 | 36.09 | 5.80 | 1.85 | 1.85 | 33.16 | 6.37 | 21.87 |
| 584 | 13.01 | 36.66 | 7.78 | 3.50 | 3.50 | 34.47 | 7.24 | 24.69 |
| 585 | 3.63 | 16.02 | 5.43 | 5.70 | 5.70 | 24.41 | 3.96 | 16.83 |
| 586 | 4.44 | 14.78 | 4.62 | 5.18 | 5.18 | 19.69 | 1.27 | 6.84 |
| 587 | 2.89 | 28.05 | 2.40 | 4.48 | 4.48 | 22.64 | 4.46 | 13.04 |
| 588 | 5.83 | 32.42 | 1.37 | 5.44 | 5.44 | 26.51 | 6.18 | 12.51 |
| 589 | 7.93 | 34.24 | 1.74 | 6.56 | 6.56 | 29.31 | 8.47 | 13.68 |
| 590 | 8.94 | 35.34 | 1.49 | 9.96 | 9.96 | 32.07 | 8.95 | 13.31 |
| 591 | 4.06 | 26.76 | 3.75 | 3.85 | 3.85 | 18.49 | 3.75 | 19.53 |
| 592 | 4.93 | 16.22 | 2.28 | 2.66 | 2.66 | 17.53 | 4.52 | 5.72 |
| 593 | 8.03 | 25.36 | 2.93 | 2.69 | 2.69 | 20.69 | 7.23 | 5.26 |
| 594 | 8.32 | 29.94 | 3.25 | 5.04 | 5.04 | 24.09 | 10.39 | 6.65 |
| 595 | 10.16 | 31.72 | 2.86 | 8.12 | 8.12 | 27.29 | 11.45 | 8.17 |
| 596 | 10.67 | 32.74 | 2.02 | 13.03 | 13.03 | 31.53 | 13.31 | 8.96 |
| 597 | 1.47 | 7.62 | 8.52 | 8.30 | 8.30 | 9.93 | 0.71 | 4.65 |
| 598 | 2.88 | 39.85 | 5.71 | 6.26 | 6.26 | 13.92 | 6.45 | 24.30 |
| 599 | 6.29 | 55.99 | 2.83 | 3.85 | 3.85 | 17.79 | 1.92 | 7.92 |
| 600 | 8.38 | 61.45 | 2.60 | 8.29 | 8.29 | 11.15 | 2.86 | 5.38 |
| 601 | 9.29 | 63.50 | 2.32 | 12.88 | 12.88 | 9.45 | 2.60 | 8.04 |
| 602 | 9.67 | 63.90 | 2.35 | 17.04 | 17.04 | 9.86 | 2.72 | 9.41 |
| 603 | 4.11 | 16.46 | 7.54 | 6.79 | 6.79 | 9.45 | 7.02 | 15.31 |
| 604 | 1.53 | 27.64 | 4.68 | 4.96 | 4.96 | 10.92 | 5.21 | 8.40 |
| 605 | 6.40 | 42.42 | 1.06 | 5.68 | 5.68 | 14.06 | 1.20 | 6.22 |
| 606 | 9.44 | 48.32 | 2.65 | 10.33 | 10.33 | 10.59 | 1.96 | 12.34 |
| 607 | 9.72 | 50.51 | 1.30 | 15.77 | 15.77 | 9.54 | 2.53 | 9.34 |
| 608 | 10.40 | 51.31 | 0.61 | 20.31 | 20.31 | 10.16 | 3.28 | 7.65 |
| 609 | 4.54 | 27.55 | 5.64 | 4.32 | 4.32 | 7.68 | 6.33 | 22.82 |
| 610 | 6.96 | 22.21 | 3.35 | 2.73 | 2.73 | 11.74 | 5.04 | 12.59 |
| 611 | 14.79 | 33.59 | 6.65 | 3.82 | 3.82 | 16.60 | 7.79 | 23.87 |

Table B-3 (CONTINUED)

| | without profile | | SM1(calculate) | SM2(calculate) | SM2(practical) | | mSM2(practical) | |
|---|---|---|---|---|---|---|---|---|
| no. | xyz | L*a*b* | xyz | xyz | xyz | L*a*b* | xyz | L*a*b* |
| 612 | 17.26 | 38.77 | 9.01 | 10.53 | 10.53 | 17.53 | 8.59 | 20.88 |
| 613 | 18.38 | 40.53 | 7.77 | 18.15 | 18.15 | 19.15 | 9.02 | 17.35 |
| 614 | 18.21 | 41.63 | 6.31 | 25.75 | 25.75 | 21.93 | 7.81 | 14.05 |
| average | 13.28 | 22.69 | 3.81 | 8.78 | 8.78 | 14.73 | 5.73 | 9.48 |
| STDEV | 7.73 | 11.18 | 3.50 | 12.64 | 12.64 | 5.95 | 3.46 | 6.51 |

# APPENDIX C

# THE PROFILE PROGRAM

C-1 The 2 parameter values in TIFF file format should be read by "KANYATIF" program; as shown in the following:

```
// tiff file validator
#include <fcntl.h>
// Header file for Tag Image File Format (TIFF) routines.
// TIFF data types */
#define INTELSTR        "II"
#define INTEL           0x4949
#define MOTOROLA        0x4d4d
#define BYTE            char
#define ASCII           char
#define SHORT           int
#define LONG            long

typedef struct RAT      {
        long upper;
        long lower;
        } RATIONAL;

struct tdirent {
        short tagno;
        short ttype;
        long  lcount;
        long  foffset;
        };

#define BYTE_SIZE        sizeof(BYTE)
#define ASCII_SIZE       sizeof(ASCII)
#define SHORT_SIZE       sizeof(SHORT)
#define LONG_SIZE        sizeof(LONG)
#define RATIONAL_SIZE  sizeof(RATIONAL)
#define BYTE_TYPE      1
```

```
#define ASCII_TYPE        2
#define SHORT_TYPE        3
#define LONG_TYPE         4
#define RATIONAL_TYPE 5
#define ERROR_VALUE     0
#define DIRECT_VALUE    1
#define INDIRECT_VALUE          2

// tags
#define STRIP_OFFSETS_TAG      0x0111
#define STRIP_BYTE_COUNTS_TAG          0x0117

// Legal compression types. See the description of the "Compression" tag
// in the "Tag Image File Format" abstract, Aldus Corporation.

#define PACK_TIGHTLY              1
#define ONE_D_MOD_HUFFMAN  2
#define TWO_D_CCITT               3
// Answer to the question of the meaning of life and arbitrarily-chosen
// version number.

#define LEGAL_VERSION 42
#define SIZEOF_DIR_ENT 12

char *tag_expl[] = {
"","","","","","","","","","","","","","","","","","",
"STRIP_OFFSETS_TAG    ","","","","","",
"STRIP_BYTE_COUNTS_TAG ","","","","","",
"","","","","F ","","","","","","","","","","","",""};

#define OPTION '-'
#define OPT_VERBOSE     'v'
#define LOWER   0x20

char creator;
long ifdptr;                    /* pointer to the first file descriptor */
```

```
int vflag;              /* is this a verbose validation? */
char ifile[80];                  /* input file name */
long bcount;            /* No. of Byte count */
int main(argc,argv)
int argc;
char *argv[];
{
            int fd;     /* file descriptor */
if(valid_parm(argc,argv)) {
                        printf("usage: %s [-v] infile.tif\n",argv[0]);
                        exit(1);
            }
if((fd = open_tif_file(ifile)) == -1) {
                        printf("Cannot Open '%s' for reading\n",ifile);
                        printf("Job Aborted\n");
                        exit(2);
            }
if(!read_tif_header(fd)) {
                        exit(3);
            }
get_field_data(fd);
}
// valid_parm - parses the passed parameters.  loads ifile, ofile and vflag
// if only the input file name is passed, the output file is created by
// finding the input filename a putting a .s suffix on the end.

valid_parm(argc,argv)
int argc;
char *argv[];
{
int i;
#ifdef DEBUG
            printf("in valid_parm, argc = %d,\n",argc);
            for(i=0;i<argc;++i) {
                        printf("argv[%d] = '%s'\n",i,argv[i]);
            }
```

```
#endif
	if(argc < 2 || argc >3) {
		return(1);
	}
	for(i=1;i<argc;++i){
		if(argv[i][0] == OPTION) {
			switch(argv[i][1]|LOWER) {
				case OPT_VERBOSE:  /* found a 'v' */
					vflag = 1;
					break;
				default:
					/* found an illegal parameter */
					return(3);
					break;
			}
		} else {
			strcpy(ifile,argv[i]);
		}
	}
#ifdef DEBUG
	printf("leaving valid_parm, vflag = %d, ifile = '%s'\n",vflag,ifile);
#endif
	return(0);
}
// open tiff file - nothing fancy here, just open the tiff file with the
// standard ms-dos file opens

int open_tif_file(infilename)
char *infilename;
{
	return(open(infilename,O_RDONLY|O_BINARY));
}
// read tif header - read the tiff header and report on its contents

int read_tif_header(filedes)
int filedes;
```

```
{
        int retval;
        struct tif_head {
                char creat[2];       /* where was this thing made */
                int        version;  /* what version is this puppy */
                long       ifd;                /* 1st image file directory */
        }head_data;
        if((retval = read(filedes,(char *)&head_data,sizeof(struct tif_head)))
                        != sizeof(struct tif_head)) {
                return(-1);
        }
        if(!strncmp(head_data.creat,INTELSTR,2)){
                printf("File was created on an Intel Processor\n");
                creator = 'I';
        } else {
                printf("File was created on an Motorola Processor\n");
                creator = 'M';
        }
        if(creator == 'M')
                swapit(&head_data.version,SHORT_TYPE);
        printf("Tiff spec. used to create format of file = %d\n",
                        head_data.version);
        if(creator=='M'){
                swapit(&head_data.ifd,LONG_TYPE);
        }
        printf("Offset of 1st IFD = %ld\n",head_data.ifd);
        ifdptr = head_data.ifd;
}
get_field_data(fileds)
int fileds;
{
        short count;
        long retval;
        int bytes_to_read;
        char *ifd;
        char *sifd;
```

```
        struct tdirent dirent;
        retval = lseek(fileds,ifdptr,0);
        if(read(fileds,&count,sizeof(short)) != sizeof(short)) {
                printf("Cannot read tiff file, ifd directory entry corrupt\n");
                exit(1);
        }
        if(creator == 'M')
                swapit(&count,SHORT_TYPE);
        bytes_to_read = count * SIZEOF_DIR_ENT;
        ifd = (char *)malloc(bytes_to_read);
        if(read(fileds,ifd,bytes_to_read) != bytes_to_read) {
                printf("Cannot read tiff file, ifd directory elements corrput\n");
                exit(2);
        }
        printf("number of entries in the first ifd = %d\n",count);
        sifd = ifd;
        while(count !=0) {
                memcpy(&dirent,ifd,(unsigned)SIZEOF_DIR_ENT);
                ifd += SIZEOF_DIR_ENT;
                breakup(fileds,&dirent);
                count--;
        }
        free(sifd);
}
breakup(fd,ptr)
int fd;
struct tdirent *ptr;
{
        long i;
        union values {
                char byte[512];
                char ascii[512];
                short word[256];
                long    longw[128];
                RATIONAL ratio[64];
        } *buffer;
```

```
        long bytes_to_read;
        if(creator == 'M') {
                swapit(&ptr->tagno,SHORT_TYPE);
                swapit(&ptr->ttype,SHORT_TYPE);
                swapit(&ptr->lcount,LONG_TYPE);
                if(ptr->ttype == SHORT_TYPE && ptr->lcount == 1){
                        swapit(&ptr->foffset,SHORT_TYPE);
                } else {
                        swapit(&ptr->foffset,LONG_TYPE);
                }
        }
if((ptr->tagno==273)||(ptr->tagno==279))
{
        printf("\ntag no. = %d ",ptr->tagno);
        if(ptr->tagno -255 >= 0) {
                printf("%s\n",tag_expl[ptr->tagno - 255]);
        }
        else {
                printf("Private Tag\n");
        }
        printf("\tttype = %d",ptr->ttype);
        switch(ptr->ttype) {
                case BYTE_TYPE:
                        printf(" type of TAG is BYTE\n");
                        break;
                case ASCII_TYPE:
                        printf(" type of TAG is ASCII\n");
                        break;
                case SHORT_TYPE:
                        printf(" type of TAG is SHORT\n");
                        break;
                case LONG_TYPE:
                        printf(" type of TAG is LONG\n");
                        break;
                case RATIONAL_TYPE:
                        printf(" type of TAG is RATIONAL\n");
```

```
                    break;
    }
    printf("\tlcount = %ld\n",ptr->lcount);
    printf("\tfoffset = %ld\n",ptr->foffset);
            if((ptr->lcount ==1)&&(ptr->tagno==273))
            {
             printf("*** Values to key in for Offset is : %ld\n",ptr->foffset);
            }
            if((ptr->lcount ==1)&&(ptr->tagno==279))
            {
             printf("*** Values to key in for Count is : %ld\n",ptr->foffset);
            }
    if( ptr->lcount > 1 || ptr->ttype > 4 ) {
            printf("values of tag at offset:\n\t");
            switch(ptr->ttype) {
                    case BYTE_TYPE:
                    case ASCII_TYPE:
                            bytes_to_read = BYTE_SIZE;
                            break;
                    case SHORT_TYPE:
                            bytes_to_read = SHORT_SIZE;
                            break;
                    case LONG_TYPE:
                            bytes_to_read = LONG_SIZE;
                            break;
                    case RATIONAL_TYPE:
                            bytes_to_read = RATIONAL_SIZE;
                            break;
                    }
            bytes_to_read *= ptr->lcount;
            if(bytes_to_read >4 ) {
                    lseek(fd,ptr->foffset,0);
                    buffer = (union values *)malloc(bytes_to_read);
                    if(read(fd,buffer,bytes_to_read) != bytes_to_read) {
                            printf("invalid tiff file, cannot read at foffset\n");
                            close(fd);
```

```
                    free(buffer);
                    exit(5);
            }
    }
    else
    {
            memcpy(buffer,&ptr->foffset,bytes_to_read);
    }
    /* now based on type, break up the read in data area */
    for(i=0;i<ptr->lcount;i++) {
            switch(ptr->ttype) {
              case BYTE_TYPE:
                    printf("%x ",buffer->byte[i]);
                    bcount = bcount+(buffer->byte[i]);
                    if(ptr->tagno==273){
                    bcount = buffer->byte[0];
                    }
                    break;
              case ASCII_TYPE:
                    printf("%c",buffer->byte[i]);
                    bcount = bcount+(buffer->byte[i]);
                    if(ptr->tagno==273){
                    bcount = buffer->byte[0];
                    }
                    break;
              case SHORT_TYPE:
                    if(creator == 'M'){
                      swapit(&buffer->word[i],SHORT_TYPE);
                      }
                    printf("%d ",buffer->word[i]);
                    bcount = bcount+(buffer->word[i]);
                    if (ptr->tagno==273){
                      bcount = buffer->byte[0];
                      }
                    break;
              case LONG_TYPE:
```

```
                                        if(creator == 'M') {
                                           swapit(&buffer->longw[i].LONG_TYPE);
                                           }
                                        printf("%ld ",buffer->longw[i]);
                                        bcount = bcount+(buffer->longw[i]);
                                        if(ptr->tagno==273){
                                           bcount = buffer->byte[0];
                                           }
                                        break;
                                   case RATIONAL_TYPE:
                                        if(creator == 'M') {
                                           swapit(&buffer->ratio[i].upper,LONG_TYPE);
                                           swapit(&buffer->ratio[i].lower,LONG_TYPE);
                                           }
                                           printf("%ld / %ld ",buffer->ratio[i].upper,
                                                   buffer->ratio[i].lower);
                                        break;
                              }
                    }
                    printf("\n");
                    printf("Total = %ld\n",bcount);
                    free(buffer);
                    bcount = 0 ;
          }
  }     /* Add to select only 2 tagno */
}

swapit(ptr,type)
char *ptr;
int type;
{
// this function will swap the bytes of a long of short
          char temp;
          if(type == SHORT_TYPE) {
                    temp = *ptr;
                    *ptr = *(ptr+1);
```

```
                *(ptr+1) = temp;
        }
        else if(type == LONG_TYPE) {
                temp = *(ptr+3);
                *(ptr+3) = *ptr;
                *ptr = temp;
                temp = *(ptr+2);
                *(ptr+2) = *(ptr+1);
                *(ptr+1) = temp;
        }
}
```

**C-2** "KANYAPRO" : the program use to convert the original image by modified system model 2 ; the detail as shown in the following:

```
#include <stdio.h>
#include <math.h>
#include<stdlib.h>
//RGB to R'G'B' transform. Output file is same inputfile.
//But have to fstablish formular before.
//You need to have C_languge skill.
int main(int argc,char *argv[])
{
        FILE *in,*out;
        int c =1 ;
        int r,g,b;
        int rr,gg,bb;
        double x = 0;
        long int start,cnt,end;
        if(argc<3){
                fprintf(stderr,"usage nabeta inputfile outputfile\n");
                fprintf(stderr,"inputfile  : Inputfile (3 chanel type RGB only raw file.)\n");
                fprintf(stderr,"outputfile : Outputfile(3 chanel type RGB only raw file.)\n");
                return 0;
                        }
                in=fopen(argv[1],"rb");
```

```
		if(!in){
			fprintf(stderr,"Inputfile(%s)can't open.\n",argv[1]);
				return 1;
				}
		out=fopen(argv[2],"wb");
		if(!out){
			fprintf(stderr,"Outfile(%s)can't open.\n",argv[2]);
				return 1;
				}
			// define //
			printf("Please enter Strip_Offset      :");
			scanf("%ld",&start);
			printf("Please enter Strip_Byte_Counts :");
			scanf("%ld",&cnt);
			end = start+cnt-1;
			//printf("start = %ld, count = %ld , end = %ld\n",start,cnt,end);
			while(1){
				if (x >= start && x <=end)
				{
				r  = fgetc(in);
				g  = fgetc(in);
				b  = fgetc(in);

if(r <=127){
//   0 < R < 128    //
rr=8.330742794+0.72434745*r-0.523295557*g-0.235150001*b+0.003820047*r*r+
0.006147514*g*g+0.002874591*b*b-0.00110254*r*g-0.000431718*r*b-0.00299267*g*b ;
gg=-4.726550413-1.298319086*r+2.279861387*g+0.508588187*b+0.0092598*r*r+
0.004687395*g*g+0.006179986*b*b-0.007822712*r*g-0.002191577*r*b-0.011797862*g*b ;
bb=-1.144134028-0.500883003*r-0.735327063*g+2.314806632*b+0.003472021*r*r+
0.007697529*g*g+0.004209249*b*b+0.005342377*r*g-0.005714404*r*b-0.013121975*g*b ;
}
if (r >=128){
// 128 < R < 255 //
rr=-119.2101366+2.682934007*r+0.106835372*g-0.284226658*b-0.001938571*r*r
+0.003983374*g*g+0.001097113*b*b-0.006840624*r*g-0.000348265*r*b+
```

```
0.000140966*g*b ;
gg=-38.29875313-0.089326042*r+2.235824015*g-0.085081292*b+0.002300932*r*r-
0.001143349*g*g+0.001837729*b*b-0.004562329*r*g-0.000984521*r*b-
0.000908951*g*b ;
bb=-18.70980518-0.09698503*r+0.286607918*g+1.759509458*b+0.001809199*r*r+
0.001389449*g*g-0.001440412*b*b-0.003078388*r*g+0.000286083*r*b-
0.002328351*g*b ;
}
            //printf("address =%f, r=%d, b=%d, g=%d\n",x,r,g,b);
                        if(rr>=255)rr=255;
                        if(rr<=0)rr=0;
                        if(gg>=255)gg=255;
                        if(gg<=0)gg=0;
                        if(bb>=255)bb=255;
                        if(bb<=0)bb=0;
            //printf("address =%f, rr= %d, bb= %d, gg = %d\n",x,rr,gg,bb);
                        fputc(rr,out);
                        fputc(gg,out);
                        fputc(bb,out);
                        x = x+3;
                        }
                        else {
                              r = fgetc(in);
                              if(r==-1)break;
                              fputc(r,out);
                              x = x+1;
                              }
            //printf("x=%f,y=%f,z=%f\n",x,y,z);//
            }
                  fclose(out);
                  fclose(in);
            return 0;
}
```

## THE REPEATABILITY OF THE SPECTROPHOTOMETER

| No. | X measurement | | | | No. | X measurement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | average X | | 1st | 2nd | 3rd | average X |
| 1 | 32.51 | 33.77 | 32.43 | 32.903333 | 16 | 0.78 | 0.8 | 0.81 | 0.7966667 |
| 2 | 37.43 | 40.88 | 39.08 | 39.13 | 17 | 0.78 | 0.8 | 0.78 | 0.7866667 |
| 3 | 29.17 | 30.32 | 28.25 | 29.246667 | 18 | 0.78 | 0.77 | 0.78 | 0.7766667 |
| 4 | 25.86 | 27.74 | 26.99 | 26.863333 | 19 | 0.77 | 0.76 | 0.8 | 0.7766667 |
| 5 | 20.21 | 20.15 | 19.64 | 20 | 20 | 0.78 | 0.79 | 0.78 | 0.7833333 |
| 6 | 17.4 | 17.54 | 17.1 | 17.346667 | 21 | 0.76 | 0.78 | 0.78 | 0.7733333 |
| 7 | 3.7 | 4.05 | 3.65 | 3.8 | 22 | 0.78 | 0.78 | 0.78 | 0.78 |
| 8 | 16.11 | 17.82 | 17.65 | 17.193333 | 23 | 51.07 | 53.47 | 52.05 | 52.196667 |
| 9 | 6.16 | 6.24 | 5.88 | 6.0933333 | 24 | 44.74 | 46.45 | 44.49 | 45.226667 |
| 10 | 6.71 | 7.23 | 6.49 | 6.81 | 25 | 40.15 | 42.02 | 39.85 | 40.673333 |
| 11 | 43.08 | 46.58 | 44.6 | 44.753333 | 26 | 32.72 | 34.56 | 31.76 | 33.013333 |
| 12 | 17.4 | 19.55 | 18.26 | 18.403333 | 27 | 70.83 | 71.62 | 70.3 | 70.916667 |
| 13 | 7.62 | 6.26 | 6.1 | 6.66 | 28 | 63.77 | 64.9 | 62.77 | 63.813333 |
| 14 | 74.74 | 74.93 | 75.55 | 75.073333 | 29 | 59.42 | 60.52 | 57.32 | 59.086667 |
| 15 | 0.79 | 0.81 | 0.8 | 0.8 | 30 | 53.11 | 53.56 | 52.15 | 52.94 |

**Table D-1 The colorimetric value X of colour patches no.1-30**

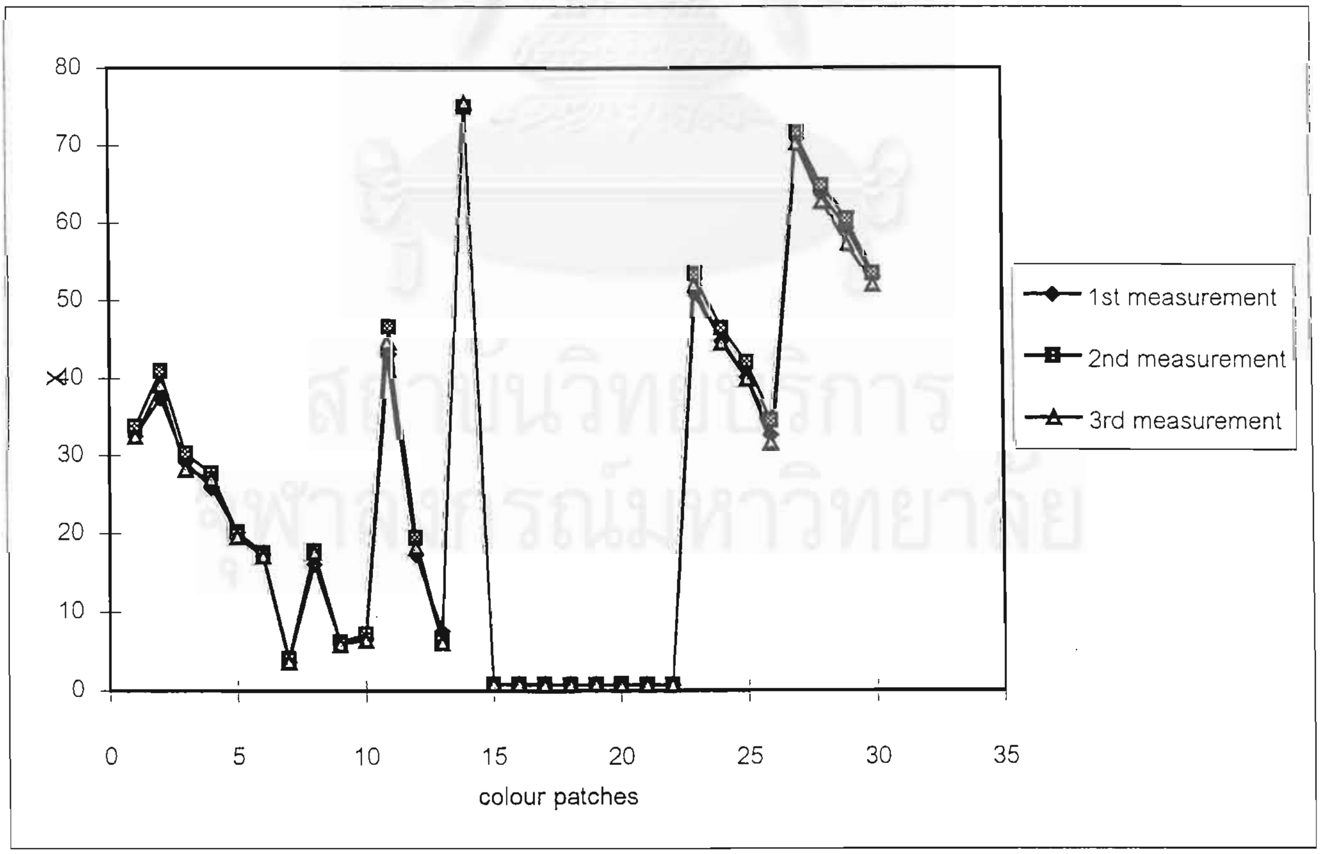



**Figure D-1 The colorimetric values X of colour patches number 1-30**

| No. | Y measurement | | | | No. | Y measurement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | average Y | | 1st | 2nd | 3rd | average Y |
| 1 | 32.67 | 33.14 | 31.58 | 32.46333 | 16 | 0.81 | 0.82 | 0.83 | 0.82 |
| 2 | 34.41 | 36.28 | 34.21 | 34.96667 | 17 | 0.81 | 0.82 | 0.8 | 0.81 |
| 3 | 27.66 | 28.52 | 26.26 | 27.48 | 18 | 0.81 | 0.79 | 0.8 | 0.8 |
| 4 | 21.26 | 21.72 | 20.73 | 21.23667 | 19 | 0.81 | 0.78 | 0.82 | 0.803333 |
| 5 | 25.69 | 24.72 | 24.1 | 24.83667 | 20 | 0.81 | 0.82 | 0.8 | 0.81 |
| 6 | 15.36 | 15.55 | 15.07 | 15.32667 | 21 | 0.8 | 0.8 | 0.8 | 0.8 |
| 7 | 3.79 | 3.97 | 3.59 | 3.783333 | 22 | 0.82 | 0.8 | 0.8 | 0.806667 |
| 8 | 9.76 | 10.42 | 10.39 | 10.19 | 23 | 49.08 | 50.17 | 48.33 | 49.19333 |
| 9 | 10.83 | 10.42 | 9.92 | 10.39 | 24 | 48.75 | 49.4 | 47.26 | 48.47 |
| 10 | 6.11 | 6.42 | 5.77 | 6.1 | 25 | 39.25 | 40.7 | 38.27 | 39.40667 |
| 11 | 47.74 | 49.02 | 46.5 | 47.75333 | 26 | 37.62 | 38.93 | 35.73 | 37.42667 |
| 12 | 10.17 | 11.18 | 10.47 | 10.60667 | 27 | 72.15 | 73.06 | 71.37 | 72.19333 |
| 13 | 8.37 | 7.68 | 7.34 | 7.796667 | 28 | 64.74 | 65.9 | 63.65 | 64.76333 |
| 14 | 77.42 | 77.64 | 78.27 | 77.77667 | 29 | 60.65 | 61.84 | 58.36 | 60.28333 |
| 15 | 0.82 | 0.84 | 0.82 | 0.826667 | 30 | 53.52 | 54.2 | 52.5 | 53.40667 |

**Table D-2 The colorimetric value Y of colour patches no.1-30**

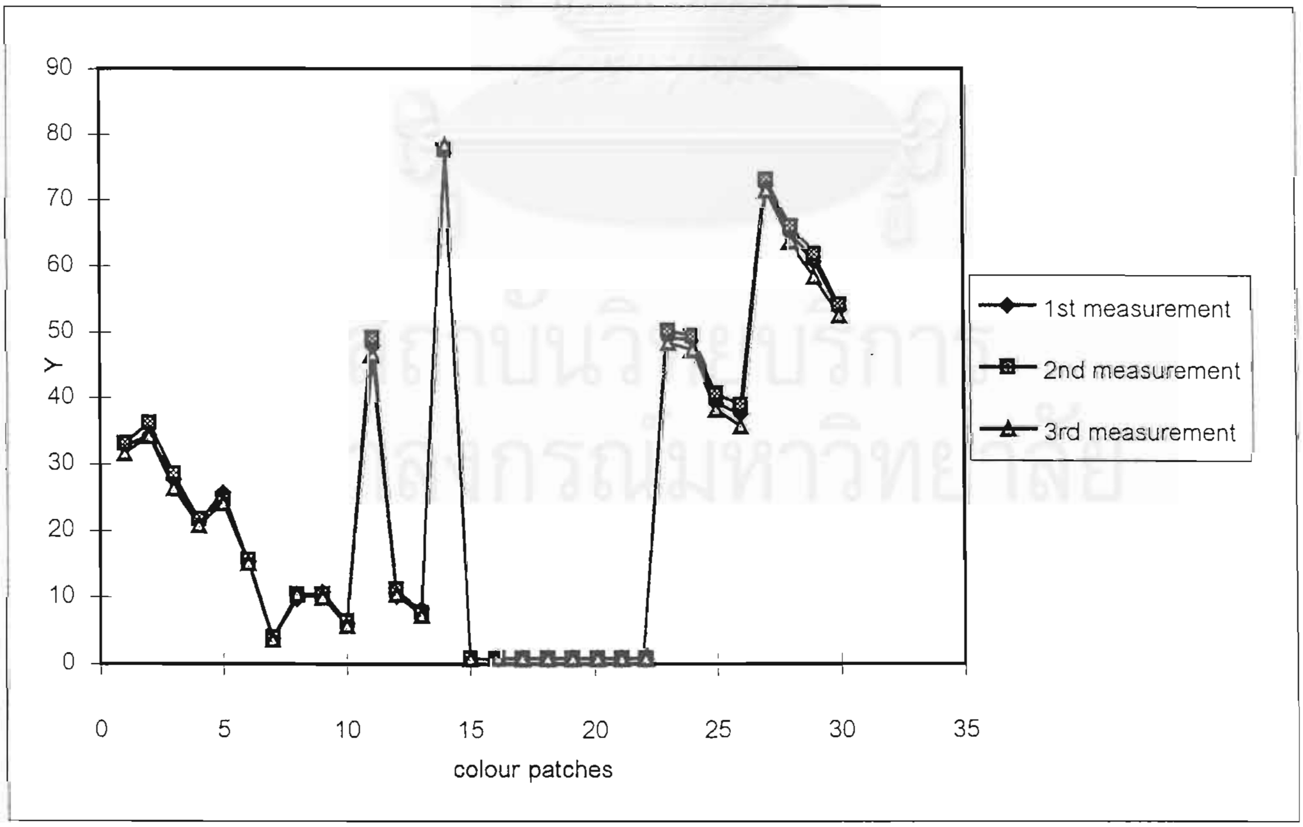



**Figure D-2 The colorimetric values Y of colour patches number 1-30**

| No. | Z measurement | | | | No. | Z measurement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | average Z | | 1st | 2nd | 3rd | average Z |
| 1 | 22.1 | 22.79 | 21.57 | 22.15333 | 16 | 0.62 | 0.64 | 0.64 | 0.633333 |
| 2 | 14.67 | 16.13 | 14.46 | 15.08667 | 17 | 0.62 | 0.64 | 0.62 | 0.626667 |
| 3 | 28.16 | 29.89 | 27.67 | 28.57333 | 18 | 0.62 | 0.63 | 0.62 | 0.623333 |
| 4 | 7.65 | 8.14 | 7.52 | 7.77 | 19 | 0.62 | 0.61 | 0.65 | 0.626667 |
| 5 | 14.1 | 14.84 | 14.15 | 14.36333 | 20 | 0.63 | 0.64 | 0.62 | 0.63 |
| 6 | 18.56 | 17.93 | 18.15 | 18.21333 | 21 | 0.61 | 0.62 | 0.62 | 0.616667 |
| 7 | 2.7 | 2.84 | 2.66 | 2.733333 | 22 | 0.63 | 0.63 | 0.61 | 0.623333 |
| 8 | 2.54 | 2.69 | 2.54 | 2.59 | 23 | 28.75 | 28.96 | 28.03 | 28.58 |
| 9 | 6.94 | 7.79 | 7.12 | 7.283333 | 24 | 34.49 | 35.72 | 34.24 | 34.81667 |
| 10 | 7.58 | 8.24 | 7.45 | 7.756667 | 25 | 36.87 | 38.84 | 36.8 | 37.50333 |
| 11 | 3.87 | 4.34 | 4.18 | 4.13 | 26 | 25.25 | 26.31 | 24.75 | 25.43667 |
| 12 | 6.4 | 6.88 | 6.47 | 6.583333 | 27 | 63.01 | 63.72 | 62.85 | 63.19333 |
| 13 | 22.18 | 22.21 | 21.31 | 21.9 | 28 | 60.36 | 61.59 | 60.42 | 60.79 |
| 14 | 64.85 | 65.22 | 65.84 | 65.30333 | 29 | 58.46 | 59.87 | 57.66 | 58.66333 |
| 15 | 0.62 | 0.65 | 0.64 | 0.636667 | 30 | 55.63 | 56.52 | 55.1 | 55.75 |

**Table D-3 The colorimetric value Z of colour patches no.1-30**

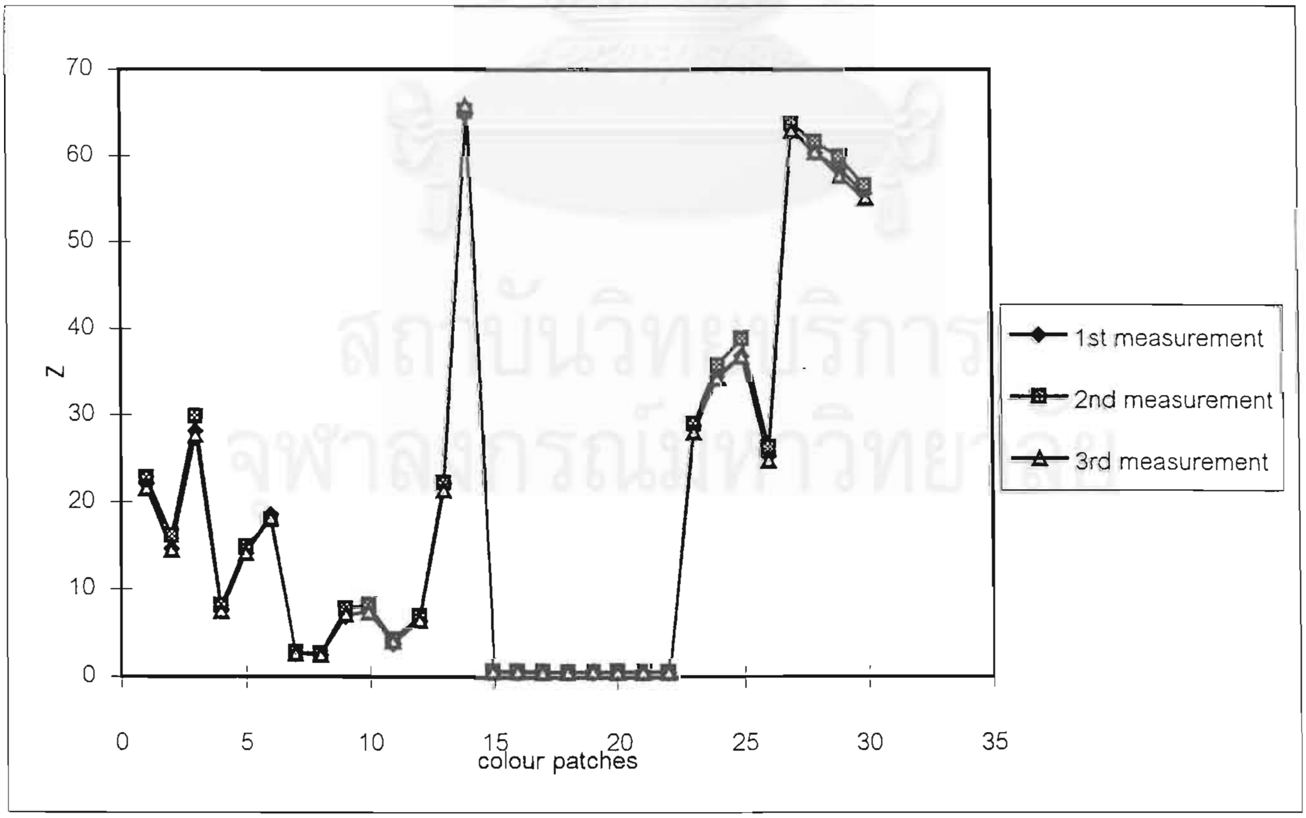



**Figure D-3 The colorimetric values Z of colour patches number 1-30**

## THE CONSISTENCY OF THE PRING-OUT FROM COLOUR COPIER

| No. | X measurement | | | | No. | X measurement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | morning | afternoon | evening | average X | | morning | afternoon | evening | average X |
| 1 | 32.90 | 37.30 | 37.21 | 35.80 | 16 | 0.80 | 0.85 | 1.94 | 1.20 |
| 2 | 39.13 | 41.93 | 42.25 | 41.10 | 17 | 0.79 | 0.85 | 1.95 | 1.19 |
| 3 | 29.25 | 34.63 | 34.45 | 32.77 | 18 | 0.78 | 0.87 | 1.92 | 1.19 |
| 4 | 26.86 | 29.32 | 29.47 | 28.55 | 19 | 0.78 | 0.86 | 1.90 | 1.18 |
| 5 | 20.00 | 24.60 | 25.05 | 23.22 | 20 | 0.78 | 0.87 | 1.89 | 1.18 |
| 6 | 17.35 | 21.45 | 21.33 | 20.04 | 21 | 0.77 | 0.85 | 1.86 | 1.16 |
| 7 | 3.80 | 5.27 | 5.60 | 4.89 | 22 | 0.78 | 0.84 | 1.89 | 1.17 |
| 8 | 17.19 | 18.12 | 17.94 | 17.75 | 23 | 52.20 | 54.42 | 55.87 | 54.16 |
| 9 | 6.09 | 7.54 | 8.37 | 7.33 | 24 | 45.23 | 50.13 | 51.92 | 49.09 |
| 10 | 6.81 | 8.67 | 9.47 | 8.31 | 25 | 40.67 | 45.26 | 46.73 | 44.22 |
| 11 | 44.75 | 46.62 | 46.89 | 46.09 | 26 | 33.01 | 36.64 | 37.88 | 35.84 |
| 12 | 18.40 | 19.14 | 19.43 | 18.99 | 27 | 70.92 | 72.13 | 72.75 | 71.93 |
| 13 | 6.66 | 8.39 | 8.98 | 8.01 | 28 | 63.81 | 68.26 | 68.02 | 66.70 |
| 14 | 75.07 | 75.09 | 75.39 | 75.18 | 29 | 59.09 | 65.24 | 64.74 | 63.02 |
| 15 | 0.80 | 0.88 | 2.01 | 1.23 | 30 | 52.94 | 59.02 | 59.28 | 57.08 |

**Table E-1 The colorimetric values X and average X of print-out at the different warming-up time**

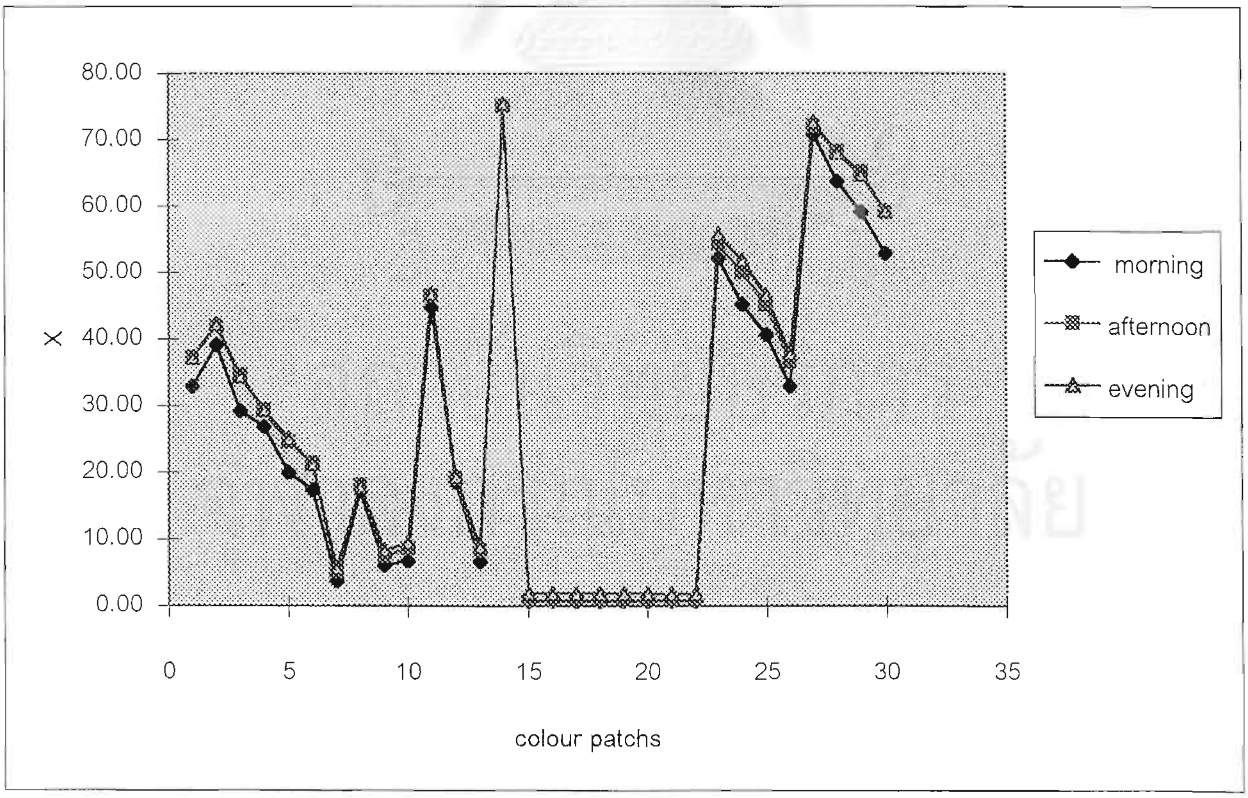



**Figure E-1 The colorimetric values X of print-out at the different warming-up time**

| No. | Y measurement | | | | No. | Y measurement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | morning | afternoon | evening | average Y | | morning | afternoon | evening | average Y |
| 1 | 32.46 | 37.23 | 37.45 | 35.72 | 16 | 0.82 | 0.88 | 2.01 | 1.24 |
| 2 | 34.97 | 38.88 | 39.53 | 37.79 | 17 | 0.81 | 0.88 | 2.02 | 1.24 |
| 3 | 27.48 | 32.64 | 32.61 | 30.91 | 18 | 0.80 | 0.90 | 1.99 | 1.23 |
| 4 | 21.24 | 24.06 | 24.58 | 23.29 | 19 | 0.80 | 0.89 | 1.98 | 1.22 |
| 5 | 24.84 | 30.23 | 30.74 | 28.60 | 20 | 0.81 | 0.91 | 1.97 | 1.23 |
| 6 | 15.33 | 19.08 | 19.12 | 17.84 | 21 | 0.80 | 0.88 | 1.93 | 1.20 |
| 7 | 3.78 | 5.23 | 5.65 | 4.89 | 22 | 0.81 | 0.87 | 1.96 | 1.21 |
| 8 | 10.19 | 10.87 | 11.06 | 10.71 | 23 | 49.19 | 52.88 | 54.93 | 52.34 |
| 9 | 10.39 | 12.45 | 13.31 | 12.05 | 24 | 48.47 | 53.88 | 56.01 | 52.79 |
| 10 | 6.10 | 7.65 | 8.53 | 7.43 | 25 | 39.41 | 43.70 | 45.65 | 42.92 |
| 11 | 47.75 | 51.69 | 52.19 | 50.54 | 26 | 37.43 | 41.54 | 43.07 | 40.68 |
| 12 | 10.61 | 11.07 | 11.56 | 11.08 | 27 | 72.19 | 73.93 | 74.57 | 73.56 |
| 13 | 7.80 | 9.25 | 10.10 | 9.05 | 28 | 64.76 | 69.62 | 69.49 | 67.96 |
| 14 | 77.78 | 77.73 | 78.05 | 77.85 | 29 | 60.28 | 66.74 | 66.32 | 64.45 |
| 15 | 0.83 | 0.92 | 2.08 | 1.28 | 30 | 53.41 | 59.76 | 60.22 | 57.79 |

**Table E-2 The colorimetric values Y and average Y of print-out at the different warming-up time**

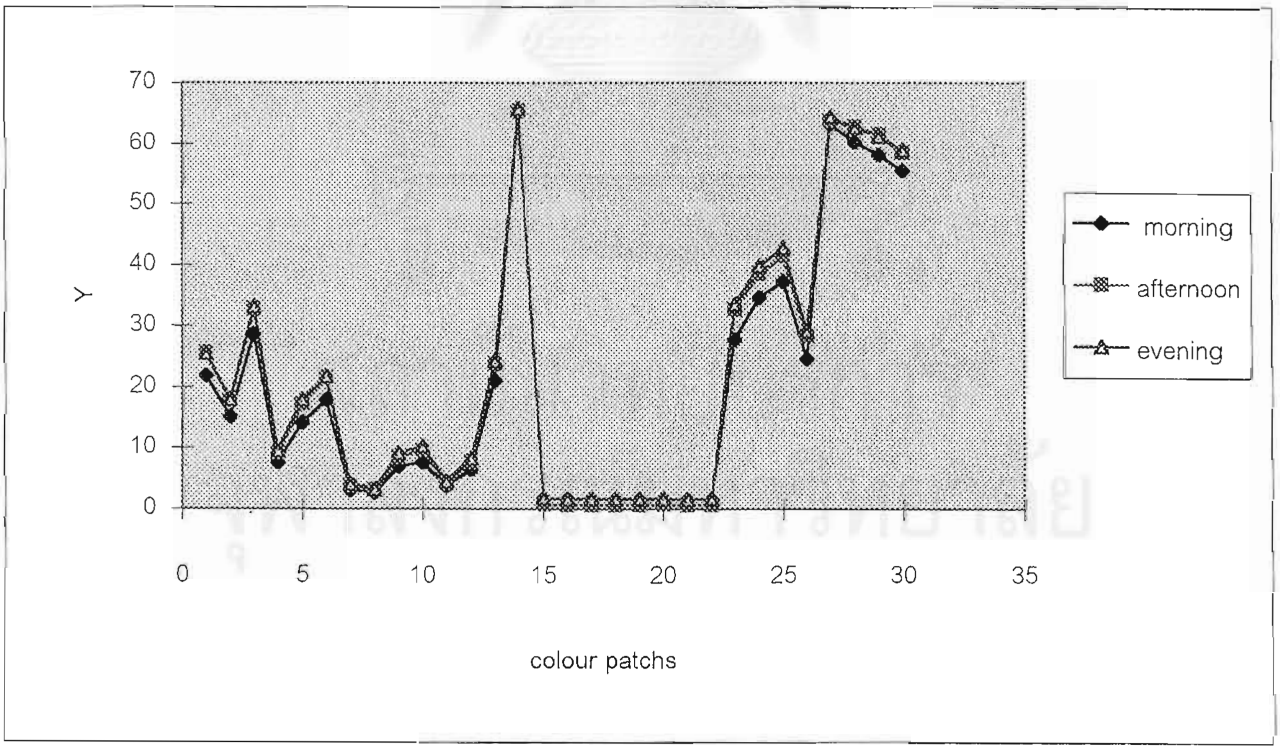



**Figure E-2 The colorimetric values Y of print-out at the different warming-up time**

| No. | Z measurement | | | | No. | Z measurement | | | |
|---|---|---|---|---|---|---|---|---|---|
| | morning | afternoon | evening | average Z | | morning | afternoon | evening | average Z |
| 1 | 21.94 | 25.67 | 25.45 | 24.36 | 16 | 1.65 | 0.67 | 1.69 | 1.34 |
| 2 | 15.076667 | 17.78 | 18.02 | 16.96 | 17 | 1.59 | 0.67 | 1.70 | 1.32 |
| 3 | 28.62 | 32.83 | 33.16 | 31.53 | 18 | 1.5733333 | 0.68 | 1.67 | 1.31 |
| 4 | 7.62 | 9.15 | 9.64 | 8.80 | 19 | 1.62 | 0.67 | 1.66 | 1.32 |
| 5 | 14.166667 | 17.25 | 18.01 | 16.48 | 20 | 1.57 | 0.69 | 1.66 | 1.31 |
| 6 | 17.916667 | 21.58 | 21.75 | 20.42 | 21 | 1.54 | 0.67 | 1.63 | 1.28 |
| 7 | 3.1166667 | 3.79 | 4.15 | 3.69 | 22 | 1.5633333 | 0.66 | 1.65 | 1.29 |
| 8 | 2.6166667 | 3.07 | 3.33 | 3.01 | 23 | 27.846667 | 32.83 | 33.65 | 31.44 |
| 9 | 6.9333333 | 8.46 | 9.24 | 8.21 | 24 | 34.666667 | 38.61 | 39.87 | 37.71 |
| 10 | 7.5633333 | 9.64 | 10.30 | 9.17 | 25 | 37.346667 | 41.40 | 42.79 | 40.51 |
| 11 | 3.8433333 | 4.12 | 4.52 | 4.16 | 26 | 24.646667 | 28.37 | 29.20 | 27.41 |
| 12 | 6.4266667 | 7.73 | 8.31 | 7.49 | 27 | 63.106667 | 63.76 | 64.36 | 63.74 |
| 13 | 21.143333 | 23.89 | 24.30 | 23.11 | 28 | 60.253333 | 62.69 | 62.60 | 61.85 |
| 14 | 65.02 | 65.40 | 65.72 | 65.38 | 29 | 58.173333 | 61.45 | 61.27 | 60.30 |
| 15 | 1.6433333 | 0.70 | 1.76 | 1.37 | 30 | 55.563333 | 58.48 | 58.90 | 57.65 |

**Table E-3 The colorimetric values Z and average Z of print-out at the different warming-up time**

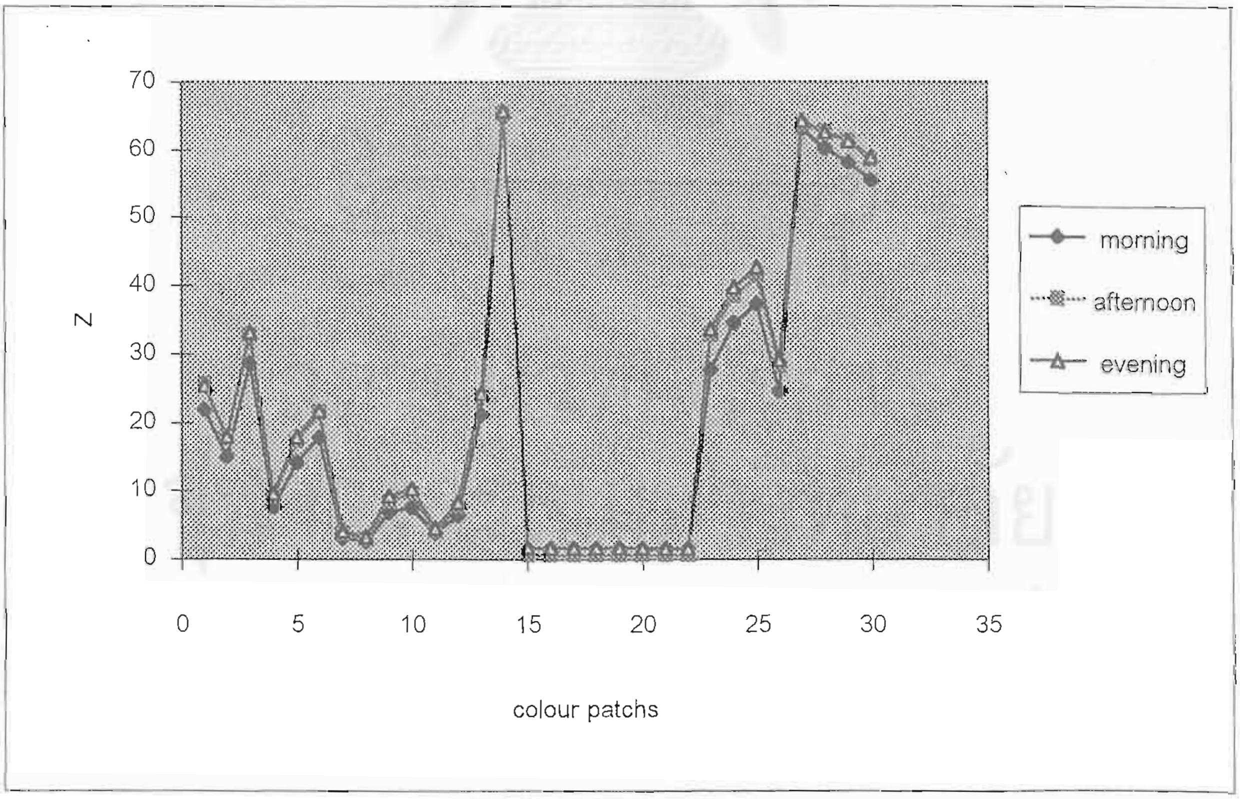



**Figure E-3 The colorimetric values Z of print-out at the different warming-up time**

# VITA

Mrs. Kunnatee Kreprasertkul was born on March 8, 1964 in Nakornrachasrima, Thailand. She graduated a Bachelors degree of Science from Chulalongkorn University in 1987. She worked at 71-Film company for 1.5 years after that she was joined to work at DZ Thailand for 2 years. From 1991 untill the present she works at Note Printing Works, Bank of Thailand. She takes responsibility for researching the security features in the banknote design and the other security documents. At 1996, she was a graduate student study in the Imaging Technology program, at the Faculty of Science, Chulalongkorn University. She graduaded a MSc. Degree in Imaging Technology in April, 2000.