Dolphin-View Gel Image System

Installation and Operation Manual

Version 3.2

Item# 01060

This instrument is intended for laboratory use only

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A. Important Notice

Before setting up and operating the instrument of Dolphin-View image system, please carefully read these instructions to get familiarized with the installation and operation process. Instructions should be read by experienced individuals before operating the instruments.

Any improper usage of the instrument may cause damage. Please refer to the safety notice included with this equipment.

The instrument shall not be modified or altered in any way. Any modification or alteration will void the warranty, void the regulatory certifications and create potential safety hazard. Wealtec is not responsible for any injury or damage caused by using the instrument for any non-intended purpose or injury as a result of modifying of the instrument by any person who is not authorized by Wealtec Corp.

A-1. Warranty

Dolphin-View image system is warranted to be free from defects in materials or workmanship for a period of one year from the original invoice date, under normal usage. Any defects occurring during warranty period, Wealtec Corp. will repair or replace defective products or parts without charge unless the defects arise from conditions outlined below. The defects described below are specially excluded from Wealtec warranty policy.

1. Improper operation of the instrument.
2. Repair or modification by any person who is not authorized by Wealtec Corp.
3. Damage caused by any (in)-direct accident, neglect or misuse.
4. Damage caused by disaster.
5. Damage caused by any improper solvents or samples

A-2. Technical and Service Contact

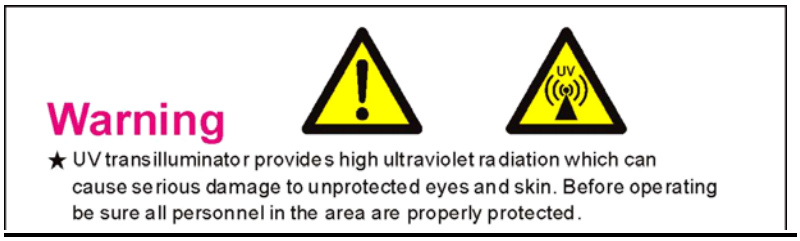
Most of the operation details are described in this instruction manual to assist and guide operator for an appropriate solution. For any other technical/service questions, please contact your local representative or contact Wealtec international technical/service specialist by E-mail: support@wealtec.com.

A-3. Safety Notice

A-3-1. Certification

The Dolphin-View image system is designed to meet the international electrical safety standards EN61010-1 and EMC regulations. This product meets CE requirements and if operated according to the guidance of the instruction manual, is certified safe. Any modification or alteration will void the warranty, void the regulatory certifications and create potential safety hazards.

A-3-2. Safety Information



Dolphin-View image system uses UV illumination for sample visualization. Transilluminators and other ultraviolet equipment or lamps are powerful sources of ultraviolet radiation which can cause serious damage to unprotected eyes and skin. Always read the product manual before operating the unit.

Before operating any unit, be sure all personnel in the area are properly protected. Personnel should protect skin and eyes by wearing ultraviolet protection eyewear, gloves and clothing when operating the UV equipment.

When using a transilluminator, it is recommended that the transilluminator be installed and operated in a darkroom where access and exposure to UV is limited. Each transilluminator is shipped with an ultraviolet blocking cover. **Even though this cover blocks the UV radiation emitted by the unit, it is strongly recommended that the UV Blocking Eyewear should be worn as well.** For details in UV transilluminator operation, please refer to Wealtec UV transilluminator instructions.

B. Introduction

Dolphin-View image system is a stand-alone image system for basic gel documentation applications. The touch screen LCD monitor with built-in system operation software offers image capturing, integration, saving/loading/deleting data and printing jobs without an external computer system. The on-screen touch panel's friendly interface design also helps researchers operate instrument with ease. Customizable file names files with internal clock offers more flexibility in recording data. The operation software's upgradeable function provides Dolphin-View with latest performance capability. This easy, compact & economical model offers convenient data recording for researchers.

B-1. Specifications

CCD camera	
Sensor size	6.4 x 4.8 mm
Sensor	Interline transfer CCD, on-chip integration
Resolution	RS-170: 768(H) x 494(V); CCIR: 752(H) x 582(V)
S/N ratio	> 56 dB
Zoom lens	8~48 mm f 1.2
Data	8 bit
Filter	Amber filter and close-up lens
Darkroom	
Drawer frame	Built-in drawer frame
Illumination	Epi-white light
UV transilluminator	312 nm, 6 x 8Watt tubes, 25 x 25 cm filter size
Power	100V/120V/230V, 50-60Hz
Monitor	LCD monitor
Control panel	Touch control on LCD monitor
Image type	TIFF file
USB port	USB 2.0
Dimension (L x W x H)	40cm x 36cm x 82cm
PC analysis software	Dolphin-View band tool analysis software
Optional	
Thermal printer	Analog thermal printer
Converter plate	UV/ White light converter plate
Software	Dolphin-1D software
Operating conditions	Temperature : 0-40℃ Humidity: 10% to 90% R.H. Non-condensing

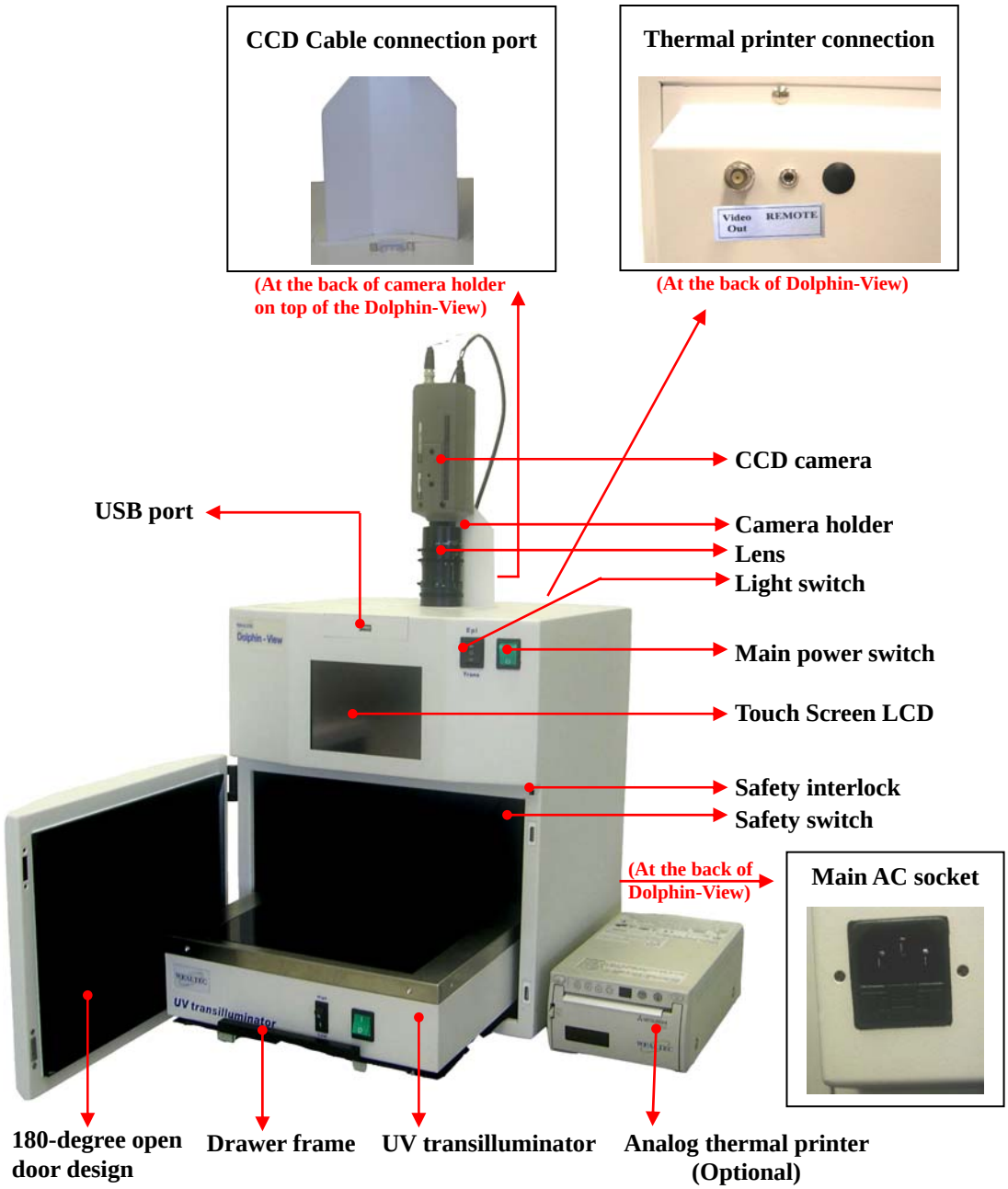
* Minimum computer system requirement for software analysis: PIII#-500MHz, 128M RAM with **English version** Windows# 2000/ NT/ XP system or above, USB (2.0) supported.

Pentium is a registered trademark of Intel Corp. Windows and Windows 2000/ NT/ XP are trademarks of Microsoft, Inc.

B-2. Product Descriptions

B-2-1. Dolphin-View Image System Hardware Overview

Dolphin-View is a stand-alone model and is operated without any external computer. The system includes CCD camera, Lens, Light Source, Darkroom, LCD monitor with finger-touch system operation.



CCD camera

High performance monochrome interline transfer CCD camera provides quality resolution and sensitivity for a wide range of routine gel imaging application. The on-chip micro-lens sensor reduces dark current, lag and blooming while improving dynamic range and sensitivity, making it suitable for low intensity fluorescence image applications.

Lens with in-darkroom lens hood

8-48 mm manual zooming lens provides manual adjustments of focal length and iris (f1.2-16C). The close-up lens and amber filter provides quality image- capturing. An in-darkroom lens hood assembly prevents possible light leakage.

Light source

Dolphin-View's epi-white light provides uniform illumination for visualization of colorimetric samples, X-ray film and negative film. For fluorescence samples, UV transilluminator with 6 x 8Watt tubes emits 312nm of UV light to excite the dye up to 25 x 25cm filter area.

Darkroom

The compact darkroom is designed for convenient gel documentation applications. With touch-control LCD panel, the system is capable of viewing the real time image and controls the image optimization function through finger-touch. The disk storage feature allows the operators to use a USB disk for saving and loading images. The epi-white light and trans-UV light are suitable for applications such as fluorescence samples, colorimetric samples, densitometric samples and colony samples. Its compact design offers space saving and portable convenience.

B-2-2. Dolphin-View Image System Features Overview

Features	Descriptions
Custom presettable image integration	Integration option from 0 to 256 frames as per user's requirements.
Loading files	User may load TIFF file from USB disk for viewing or printing images.
Deleting files	User may delete the files from USB disk

Friendly file saving	The “Save” function allows the user to save the images into USB disk either by entering the new file-name or with default name.
Printing option	With an optional analog thermal printer, the user may print the images along with time, date and integration condition directly upon capturing the picture. While loading the file/ images from the USB disk, images can be printed along with its associated file name conveniently.
Setups	Time, date and LCD monitor’s contrast, brightness and gamma are editable. For fast and easy operational purposes, the default setting is also selectable.
Upgrading ability	The Dolphin-View allows simple system upgrading by inserting the latest version in the USB disk and selecting “Version” in the Setup Menu.

B-2-3. Band Tool Analysis Software Features Overview

Features	Descriptions
Dolphin-View band tool analysis software	Simplified Dolphin-View band tool analysis software is a tool which uses Dolphin-View’s captured images for further band analysis.
Automatic lane and band detection	Dolphin-View band tool analysis software is suitable for gel data analysis, such as lane and band.
User-friendly quick guide operation	The step-by-step quick guide function provides the user guidance from capturing images to fast image analysis. The ability to learn a complicated software operation is not needed.

Compatible image files format supported	Various images file format JPG, BMP, JPEG, DFN, TIF, TIFF, PCX, GIF, and TGA is supported as can be loaded, analyzed and saved.
Traceable image enhancement function	While analyzing an image, the Dolphin-View band tool analysis software provides convenient tools such as text, line, color adjustment, rotation, flipping, invert etc. “Record” icon function allows the users to track previous actions.
Traceable image enhancement function	While analyzing an image, the Dolphin-View band tool analysis software provides convenient tools such as text, line, color adjustment, rotation, flipping, invert etc. The “Record” icon function allows the users to track previous actions.
Ability to identify smiling gel accurately	Dolphin-View band tool analysis software can identify bands, even if the gel is deformed as a smiling gel.
Image profile & 3-D display	Image data can be visualized in lane profile and in 3-D display.
Support GLP/GMP mode	Image data can be protected by a password log-in setting to avoid uncertain modification.

Computer system requirement for Dolphin-View band tool analysis software

Minimum computer system requirements: PIII-500 MHz, 128 RAM with English version Windows 2000/ NT/ XP system or above, USB (2.0) supported.

B-2-4. Printer (Optional)

An optional analog thermal printer is applicable for Dolphin-View. The “Print” function is directly controllable through Dolphin-View’s on-screen touching system operation.

Recommended model: Mitsubishi P-93W Thermal Printer or Sony UP-895MD Thermal Printer.

C. Installation of Dolphin-View Image System and Dolphin-View Band Tool Analysis Software

C-1. Package List

Item	Quantity
Dolphin-View darkroom with integrated control system	1
Camera holder with 3 wing nuts	1
CCD camera with 1 plastic head screw, 1 metal washer, 2 connectors and 3 hex wrenches	1
Lens (Amber filter & Close-up lens assembled)	1

Lens hood (49mm) 	1
Integration cable (one 9 pin connector split to one BNC connector, one AUX connector, and two thin power wires) 	1
BNC cable 	1
UV transilluminator (25 x 25 cm filter size) 	1
Power cable 	1
Instruction package (One Installation and Operation Manual, one ruler and one calibration chart.) 	1

Dolphin-View band tool analysis software (Including installation CD and USB protection key [USB key-pro]) 	1

C-2. Installation of Dolphin-View Image System

C-2-1. Benchspace Requirement

Minimum area of 40cm (L) x 36cm (W) x 82cm (H) is required, excluding computer and printer. Recommended dimension is 60cm (L) x 60cm (W) x 90cm (H).

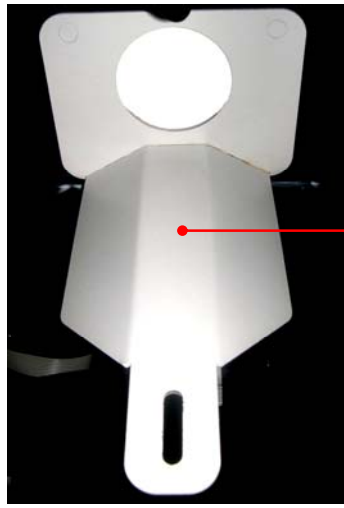
C-2-2. Required Assembly tools

Flat blade screwdriver with 3.8mm tip size. Such screwdriver can be found in generic jewel or eyeglass screwdrivers set.

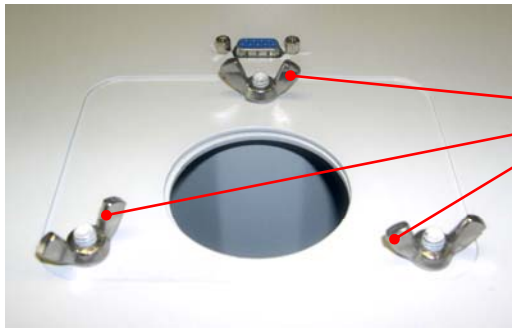
C-2-3 Installation Procedure

1. **Place Darkroom unit:** Carefully pull the darkroom out of the package box and place it at the work bench. The work bench should provide the space with the minimum size of 40cm (L) x 36cm (W) x 82cm (H). The recommended dimension is 60cm (L) x 60cm (W) x 90cm (H).

2. **Prepare Camera Holder:**
   The camera holder is shipped with the darkroom unit.



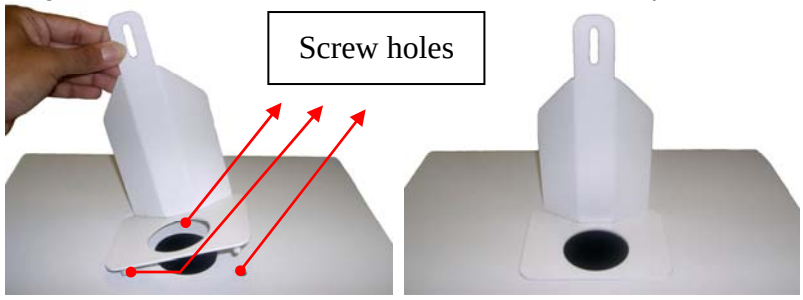
Open the darkroom door. Grip the camera holder inside the darkroom and unscrew the three wing nuts on top of the darkroom. Then, remove the camera holder.



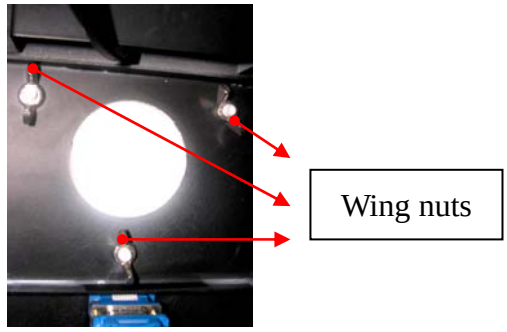
⚠**Caution: Be careful do not damage the white light and LCD unit.**

3. Mount Camera Holder:

Place and align the camera holder to the three screw holes on top of the darkroom unit.

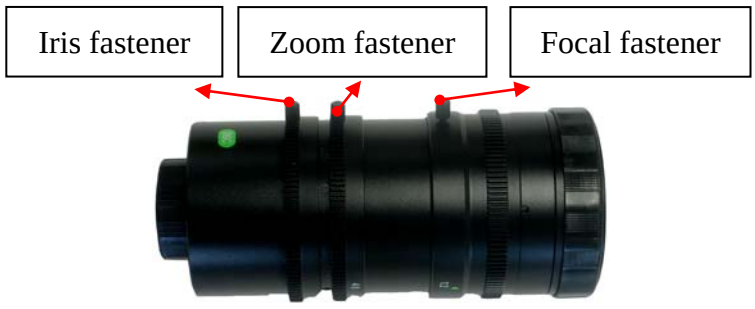


Fasten the camera holder with wing nuts inside the darkroom.



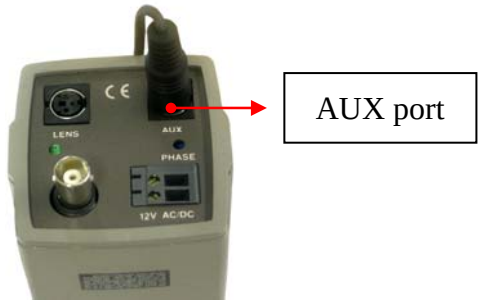
4. Set up Camera Assembly:

Prepare camera, lens unit with integration cable. Examine three fasteners associated with lens unit. Loosen those fasteners to ensure each corresponding gear in adjustable conditions.



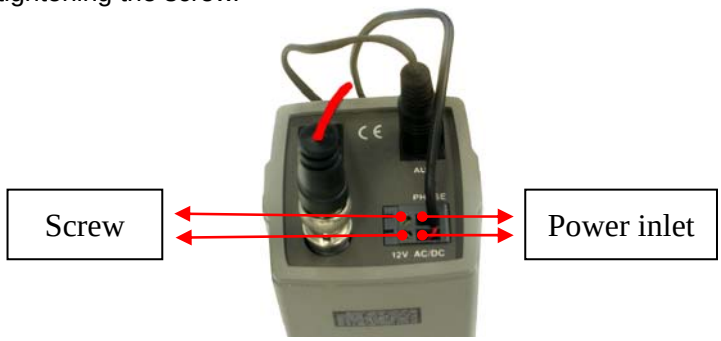
Remove both caps of camera and lens units. Attach lens unit to the camera.

Connect AUX connector of the integration cable to the AUX port of the camera.



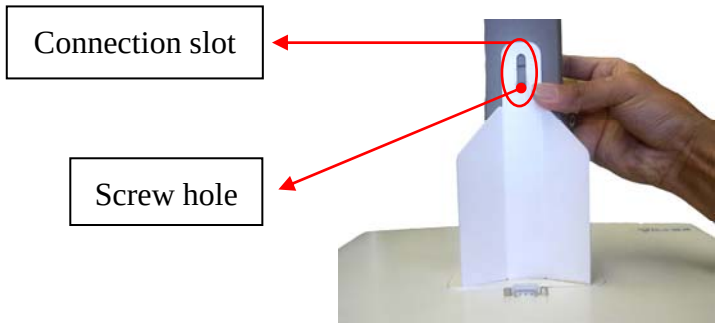
Connect BNC connector of the integration cable to the video port of the camera.

Insert the power wires to the bottom of the power inlets (slots labeled with 12V AC/DC). Use the 3.8mm flat head screwdriver to tighten the connection and ensure the power wires reach the bottom before tightening the screw.

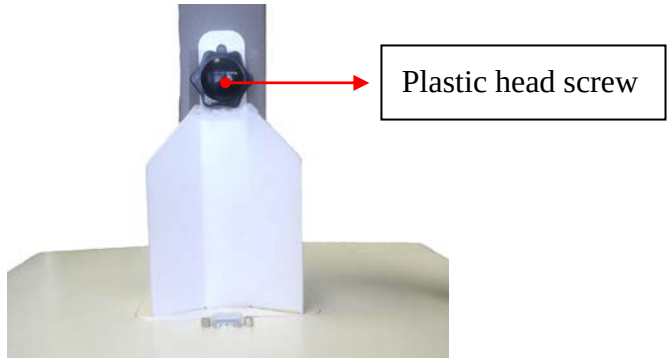


5. Connect Camera Assembly to Darkroom Unit:

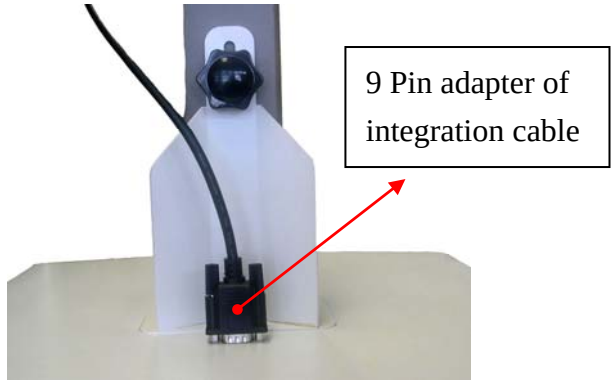
Remove the front cap of the lens unit attaching to the camera unit. Align the screw hole of camera to the bottom edge of the connection slot of camera holder



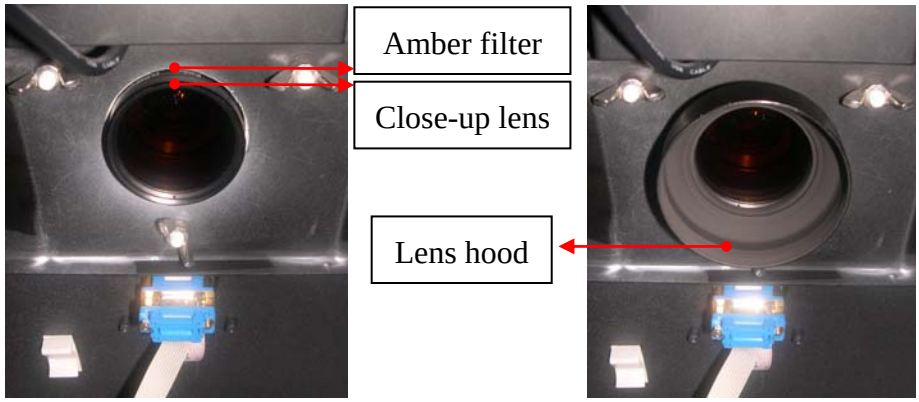
Tighten the camera assembly and camera holder with metal washer and plastic head screw.



Remove the plastic cap from 9 pin female connector located next to the camera holder. Connect the 9 pin adaptor of integration cable to 9 pin female connector.



Inside darkroom unit fix the lens hood on the lens which is connected to the camera and the darkroom unit.

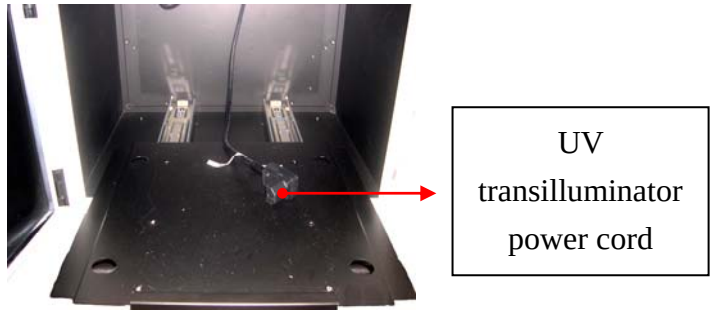


Before lens hood is connected

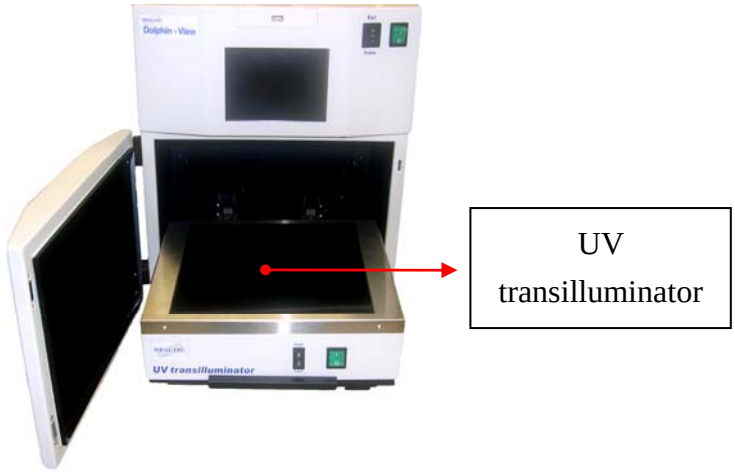
After lens hood is connected

6. Install UV Transilluminator:

Open Dolphin-View darkroom cabinet door and pull out the drawer frame from darkroom unit. Remove the tape from the UV transilluminator power cord.

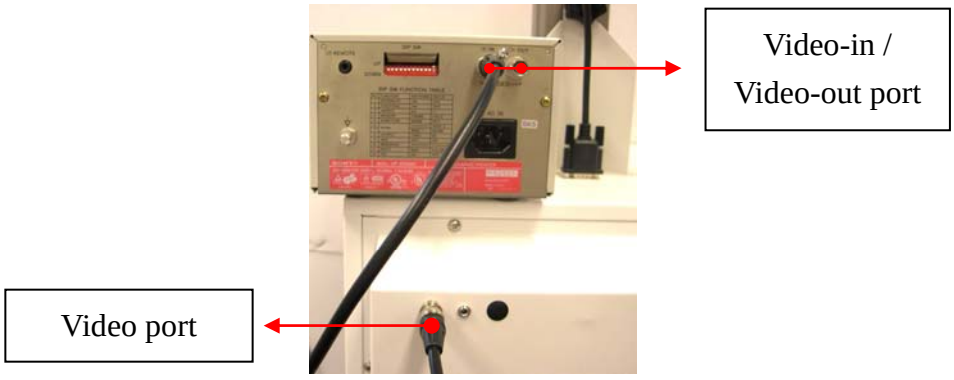


Position the transillumintor on the drawer of the darkroom with the UV transilluminator power switch facing the installer. Inside the darkroom unit, plug the UV transilluminator power cord to the UV transilluminator AC socket at the rear side of the UV transilluminator.

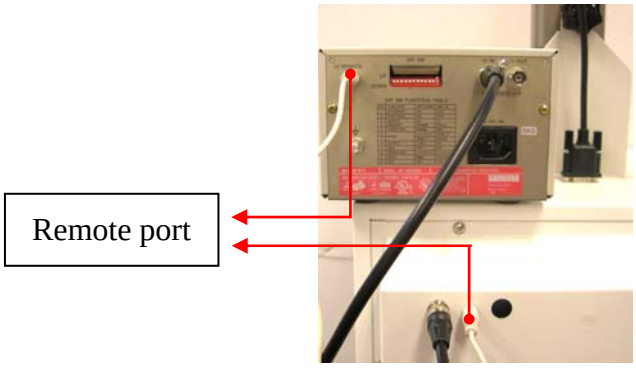


7. Install Thermal Printer (Skip this step if printer is not purchased):

The video port is located at the rear side of the darkroom unit. Connect BNC cable to the video port of the darkroom unit and video-in / video-out port of the printer.



Connect remote cable to both darkroom unit and printer.



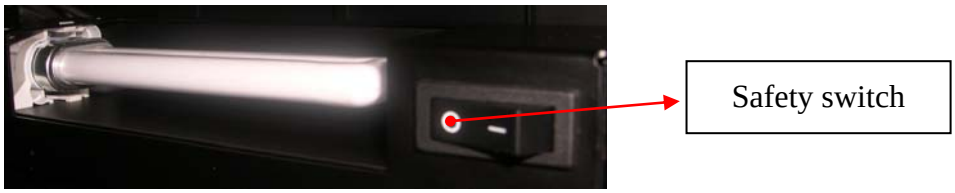
8. Setting Default Switching Positions:

UV Transilluminator:

Ensure the UV transilluminator light intensity switch is switched to low and switch ON the UV transilluminator power (marked “I”) as shown in the following picture.

Safety Switch

The safety switch is located at the right side bottom of 6W PL lamp. Ensure the switch is switched OFF (marked “O”) indicates safety is ON.



Note: In the case where safety is ON, the UV transilluminator will turn off automatically if darkroom cabinet door is opened.

Front Panel Switches:

Ensure the light switch is switched at neutral (marked “O”) and main power switch is switched off (marked “O”) as shown in the following picture.

9. Connect Power Cable:

Ensure the working voltage of the image system matches the local voltage. The AC socket is located at the rear side of darkroom unit and thermal printer (If printer is purchased). Connect power cable to the AC socket and plug it into main power source.

10. Examine Installation Functionality:

Caution: Before examining the Epi or UV light, be sure all personnel in the area are properly protected. Personnel should protect skin and eyes by wearing ultraviolet protection eyewear, gloves and clothing when operating the UV equipment. Even personnel close to the Dolphin-View should be properly protected**. It is strongly recommended not to operate the unit without UV-blocking cover installed.**

Turn on the front panel power switch and ensure the light switch is switched at different positions to verify the Epi and UV lights are functional.

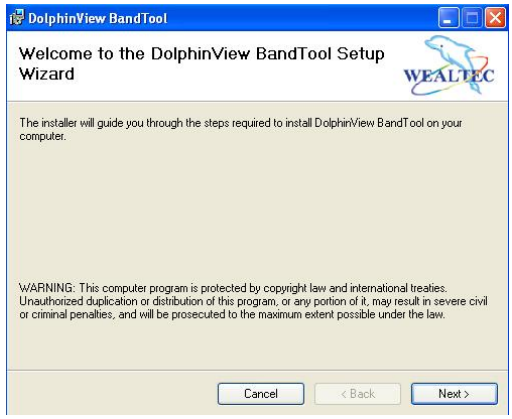
C-3. Dolphin-View Band Tool Analysis Software Installation

C-3-1. Computer System Requirement

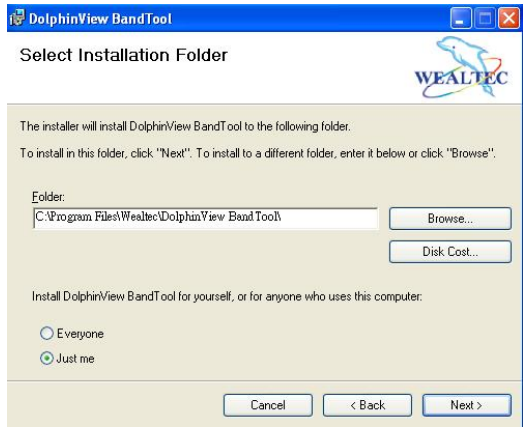
Minimum computer system requirement: Intel PIII-500 MHz, 128 RAM with English version Windows 2000/ NT/ XP system or above, USB (2.0) supported.

C-3-2. Installation Procedure

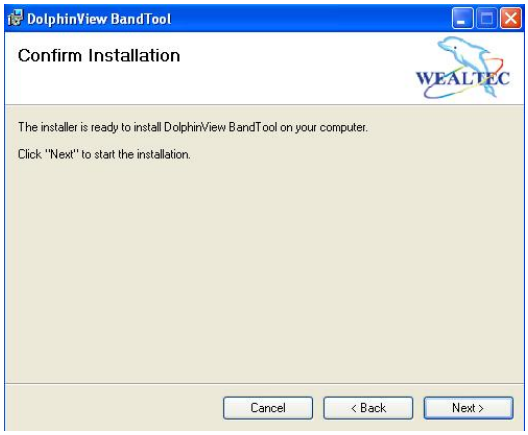
1. Insert the protection key to computer's USB port (USB key-pro).
2. Insert software installation CD to the CD-driver. Click "setup" to initiate Dolphin-View band tool analysis software setup wizard which will guide through the steps to install the software. Click "Next" to proceed.



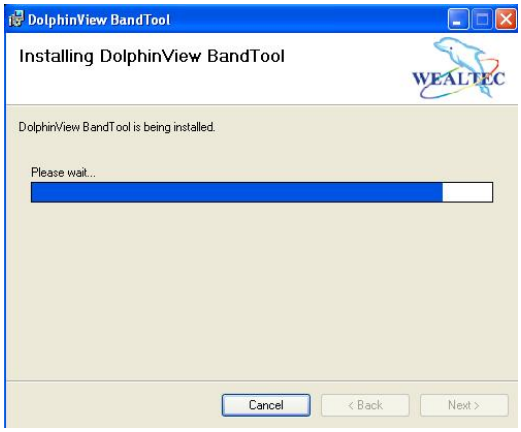
3. Choose the software installation folder by clicking "browse" button and select the privacy option for single or multiple users. Click "Next" to proceed.
   Note: Default setting for folder "C:\Program Files\Wealtec\DolphinView BandTool\" and single user privacy option "Just me"



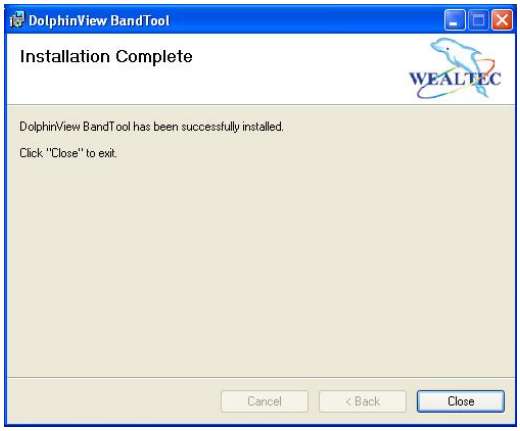
4. Click “Next” to confirm and start the installation.



5. Installation of the software on the progress.



6. Dolphin-View band tool analysis software setup completed successfully. Click “Close” to exit setup menu.



7. Reboot the computer to complete the system setup.

8. To initiate software program double click on the shortcut button

from windows desktop or go to “Start Menu” → “Program file” → “Dolphin View Band Tool”. Enter Dolphin-View Band Tool Serial Number printed on Key-pro or CD sleeve and click “Ok”.

Note: If key-pro is disconnected, a warning window will pop-up

, click “OK” and ensure the key-pro connection before attempting to initiate the software.

D. Operation

D-1. Dolphin-View Image System Hardware Operation

D-1-1. General Operation:

1. Turn on Dolphin-View main power switch (Green switch located at darkroom's front top right side) and on-board computer will be initiated.
2. Open Dolphin-View darkroom door and pull out the drawer.
3. For trans-white light applications, operator shall place the optional UV/white light converter plate (Item# 1146001) on the UV transilluminator to transform the UV light into visible white light.
4. Place and position the capturing target on the surface of UV transilluminator
5. Push the drawer back into the darkroom and close the door. Select and switch the light switch appropriately to the preferred light source of Epi- or Trans-light.
6. Adjust the lens assembly to the perfect iris, zoom and focal on the targeted sample image by viewing the LCD display.
7. Touch "Freeze" button on the LCD touch panel to capture primary image and to display the captured image on the main menu of the program.
8. Turn off the main power switch upon capturing and printing the image and open the darkroom cabinet door and remove the captured target from Dolphin-View image system.
9. Touched sample surface shall be cleaned with pre-moistened soft tissue after every use to avoid any possible contaminations and damages to the instrument.
10. Eject the USB drive with saved files from Dolphin-View USB port and transfer to computer for further data analysis using Dolphin-View band tool analysis software.

D-1-2. Gel Excision

Caution: Before opening the door under UV light excitation mode, be sure all personnel in the area are properly protected. Personnel should protect skin and eyes by wearing ultraviolet protection eyewear, gloves and clothing when operating the UV equipment. Even personnel close to the Dolphin-View should be properly protected. **It is strongly recommended not to operate the unit without UV-blocking cover installed.**

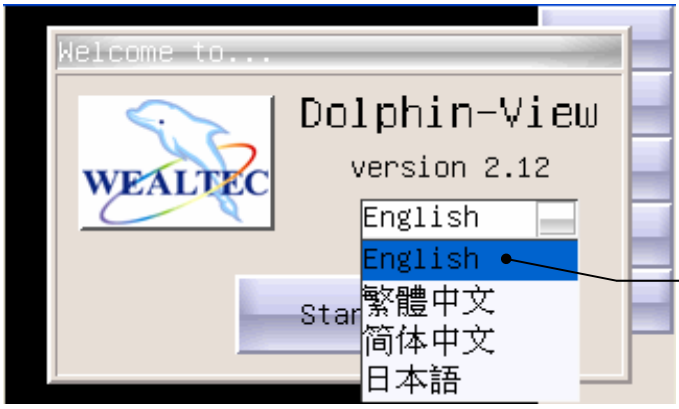
1. Turn on the Dolphin-View main power switch (Green switch located at darkroom's front top right side) and the on-board computer will be initiated.
2. Open Dolphin-View darkroom door and pull out the drawer.
3. Place and position the capturing target on the surface of UV transilluminator.
4. Switch the UV transilluminator light intensity switch to low intensity.
5. Turn the safety switch to "SAFETY OFF" mode (Front top right epi-white light marked "I") to

deactivate the darkroom cabinet door-open control safety interlock so as trans-UV light will continue to ON when door is opened during the gel excision.

6. Select the light source by switching the light switch from “EPI” to “Trans” UV light.
7. Gel excision. (**Note:** Do not scratch the UV transilluminator filter during gel excision)
8. Push the drawer back into darkroom and close the darkroom cabinet door.
9. Turn the safety switch back to “SAFETY ON” mode (marked “O”) and turn off the main power switch upon completing the gel excision.
10. Touched sample surface shall be cleaned with pre-moistened soft tissue after every use to avoid any possible contaminations and damages to the instrument.

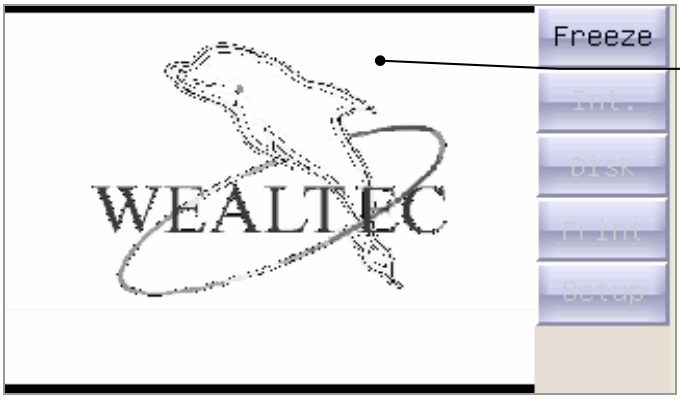
D-2. Dolphin-View Image System Operation

All the Dolphin-View operations can be performed via touch panel associated with LCD display.



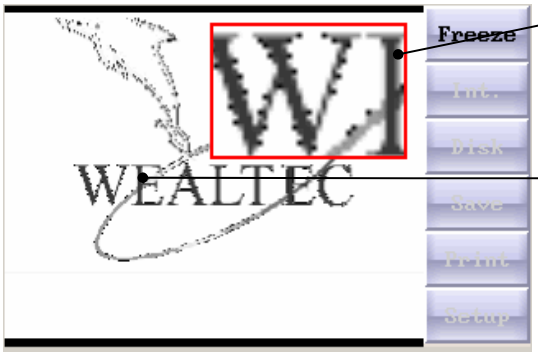
Before beginning the operation, please select the language format.

I Live Mode



Touch on the image at the position you want to magnify. The “Magnifier Function” will be initiated. (See I-1)

I-1 Magnifier Function



The magnifier red window will zoom in the position for easy focus adjustment.

Touch again to disable magnifier window

II Main Menu

Select “Live” back to “Live Mode”. (See I)

Select “Int.” for “Integration Time Setting” function. (See II-A)

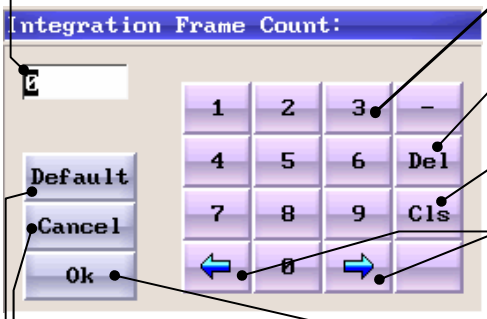
Select “Disk” to see the “File List in Disk”. (See II-B)

Select “Print” to “Print Image” function. (See II-D)

Select “Setup” for “Setup Menu”. (See II-E)

II-A. Integration Time Setting

Integration Frame Count Display.



Touch numbers to input integration frame count value.

Touch “Del” to delete letter to the right.

Touch “Cls” to clear all.

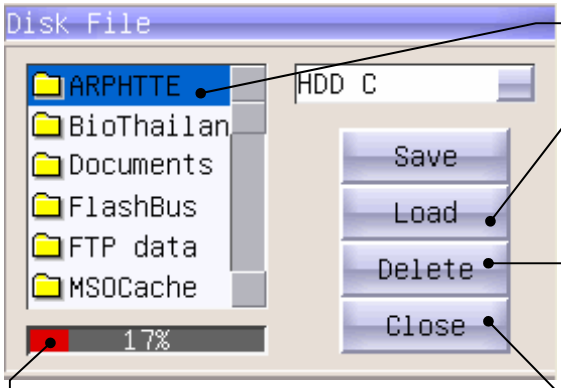
Touch “←” or “→” to move the cursor to left or right.

Go back to “Main Menu”. (See II)

Finish and go back to “Main Menu”. (See II)

Set integration frame count as the default value.

II-B File List in Disk



Select the appropriate file name.

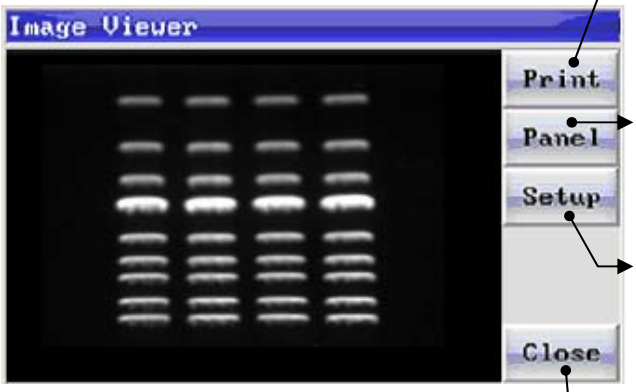
Touch “Load” to open the selected file. (See II-B-1)

Touch “Delete” to delete the selected file. (See II-B-2)

Go back to “Main Menu”. (See II)

Disk used space

II-B-1 Operation of Loaded Image



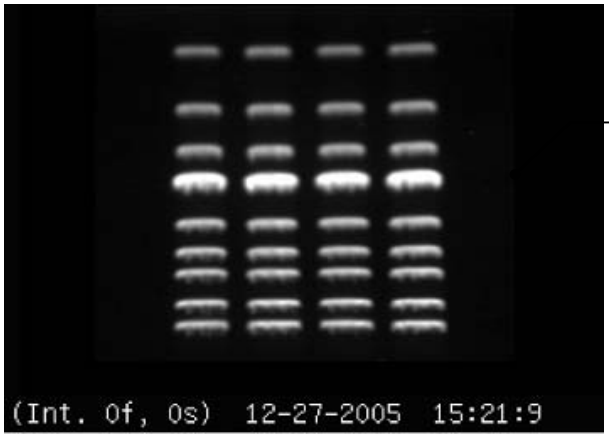
Select “Print” to print image. (See II-B-1-1)

Select “Panel” to adjust panel control. (See II-B-1-2)

Select “Setup” for “Setup Menu”. (See II-E)

Touch “Close” to go back to “File List in Disk”. (See II-B)

II-B-1-1 Print the Loaded Image



Print image with file name, date and time. Upon printing, program will automatically go back to “Image Viewer”. (See II-B-1)

II-B-1-2 Panel Control

Move icon to adjust Monitor's Contrast, Brightness and Gamma value.

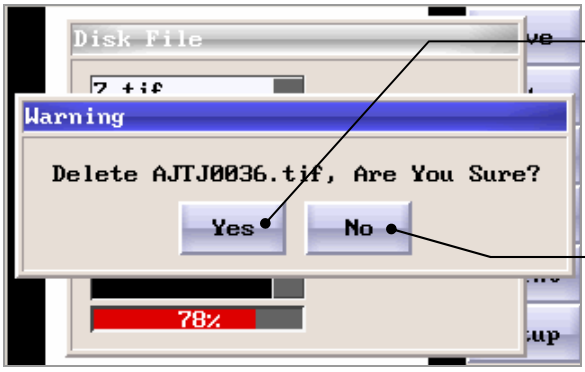
Run new preset value and go back to "Image Viewer". (See II-B-1)

Go back to "Image Viewer" without any changes in setting. (See II-B-1)

Set to default value.

Select setting parameter.

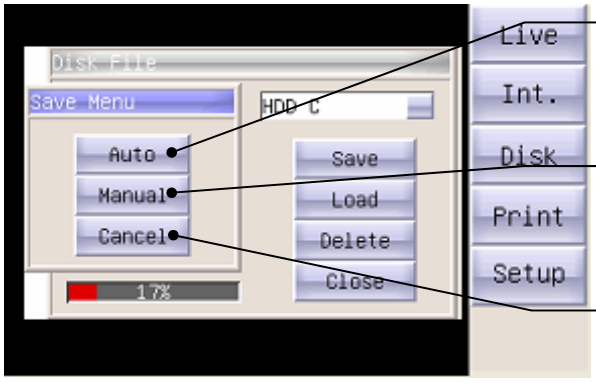
II-B-2 Delete Image



Delete the selected file and go back to "File List in Disk". (See II-B)

Go back to "File List in Disk" without deleting the selected file. (See II-B)

II-C Save Menu

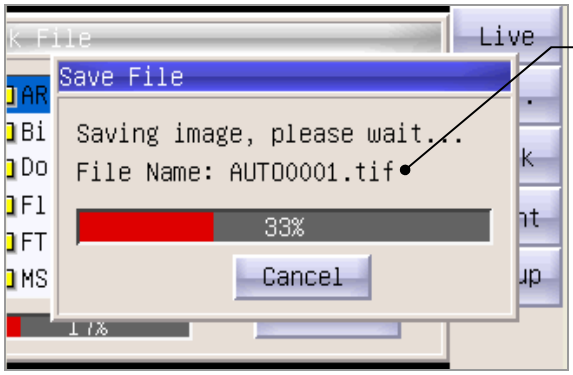


Save image with default file name. (See II-C-1)

Save image with specified file name. (See II-C-2)

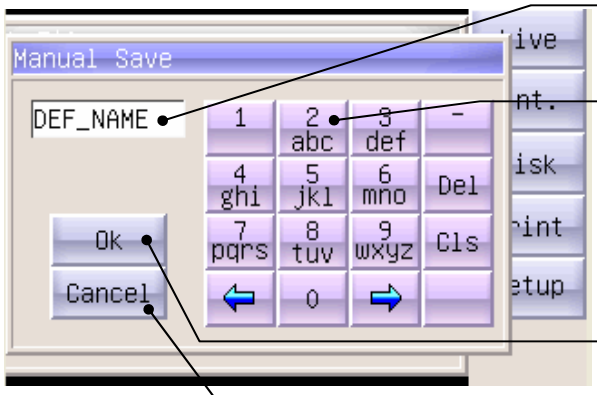
Go back to "Main Menu" without saving image. (See II)

II-C-1 Processing Auto Save



Saving image with default file name. Upon saving, program will automatically go back to “Main Menu”. (See II)

II-C-2 Manual Save



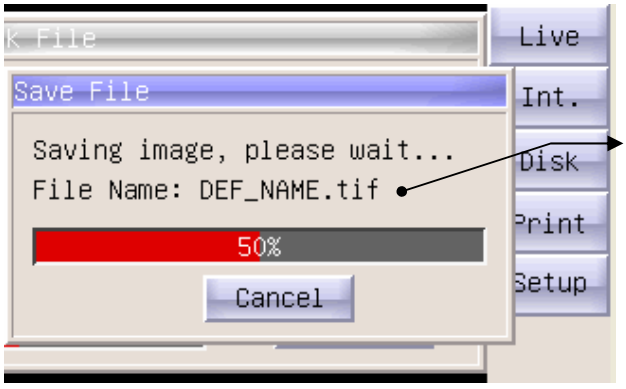
TIFF file name display.

Touch icons to input file name. Ex. touch once on number 2, it shows 2; touch twice, it shows A; touch three times, it shows B; touch four times, it shows C.

Save file. (See II-C-2-1)

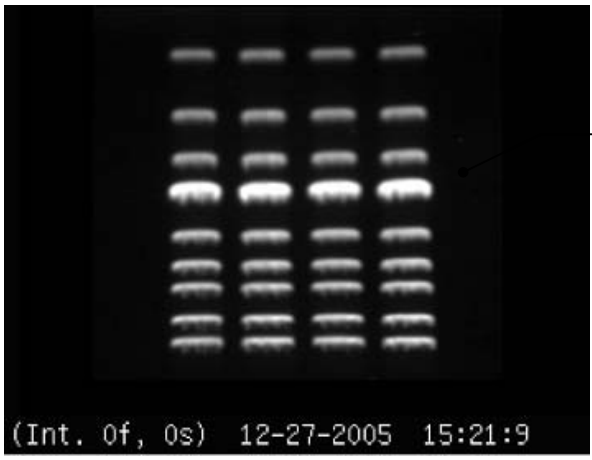
Go back to “Main Menu” without saving the image. (See II)

II-C-2-1 Processing Manual Save



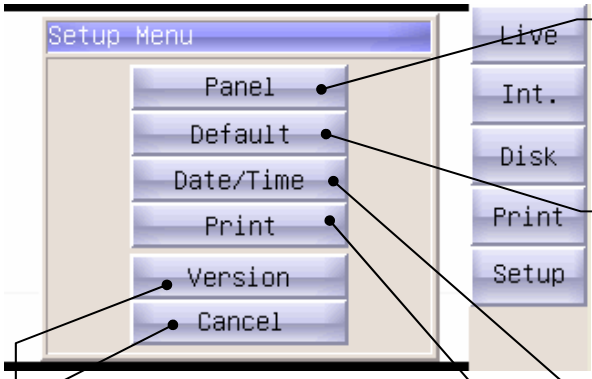
Saving image manually with entered file name. Upon saving, program will automatically go back to “Main Menu”. (See II)

II-D Print Image



Print image with integration frame count, date and time. Upon printing, program will automatically go back to “Main Menu”. (See II)

II-E Setup Menu



Press “Panel” to set monitor’s brightness, contrast and gamma. (See II-E-1)

Select “Default” to set default value of integration, brightness, contrast, gamma and auto save file name. (See II-E-2)

Select “Date/Time” to set date and time. (See II-E-3)

Select “Print” for printing size option. (See II-E-4)

Touch “Cancel” to quit setup menu and go back to “Main Menu”. (See II)

Select “Version” to check current program version or to upgrade latest version. (See II-E-5)

II-E-1 Panel Control

Move icon to set Monitor's Contrast, Brightness and Gamma value.

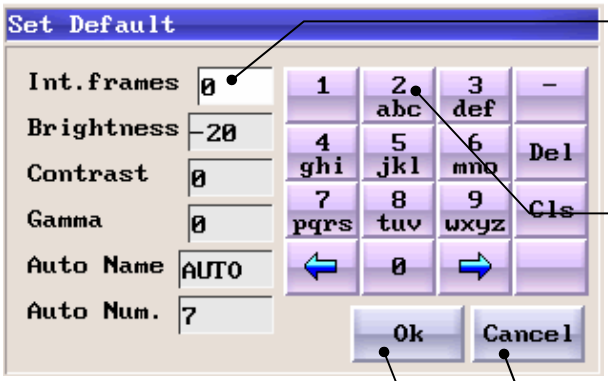
Accept the new preset value and go back to "Main Menu". (See II)

Go back to "Main Menu" without any changes in settings. (See II)

Set to the default value.

Select setting parameter.

II-E-2 Set Default



Specify the parameters needed to be changed by touching into the corresponding text box

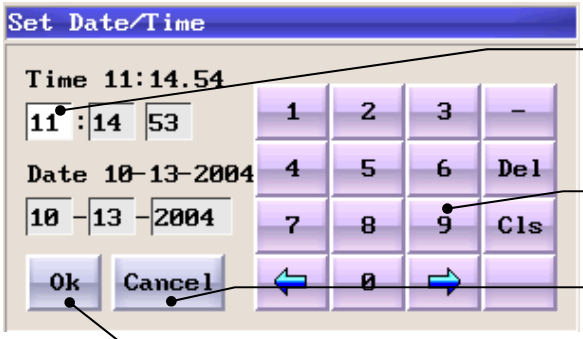
Numerical or alphabetical input key.

Ex. Touch once on number 2, it shows 2; Touch twice, it shows A; Touch three times, it shows B; Touch four times, it shows C.

Back to "Main Menu" without any changes. (See II)

Touch "OK" to save new default value and back to "Main Menu". (See II)

II-E-3 Set Date/Time



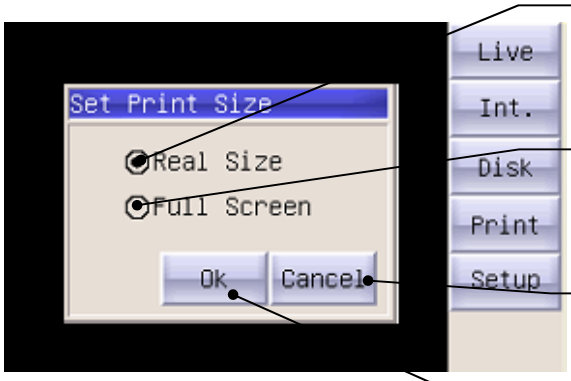
Select the value to be changed by touching into the corresponding text box.

Use the number keys to input new value.

Back to “Main Menu” without any changes. (See II)

Touch “OK” to preset new time/ date and back to “Main Menu”. (See II)

II-E-4 Print Setup



Touch “Real Size” to select real size of the printing size. (See II-E-4-1)

Touch “Full Screen” to select full screen printing size. (See II-E-4-2)

Go back to “Main Menu” without any changes. (See II)

Touch “OK” to set new printing size and go back to “Main Menu”. (See II)

II-E-4-1 Print Real Size

II-E-4-2 Print Full Screen

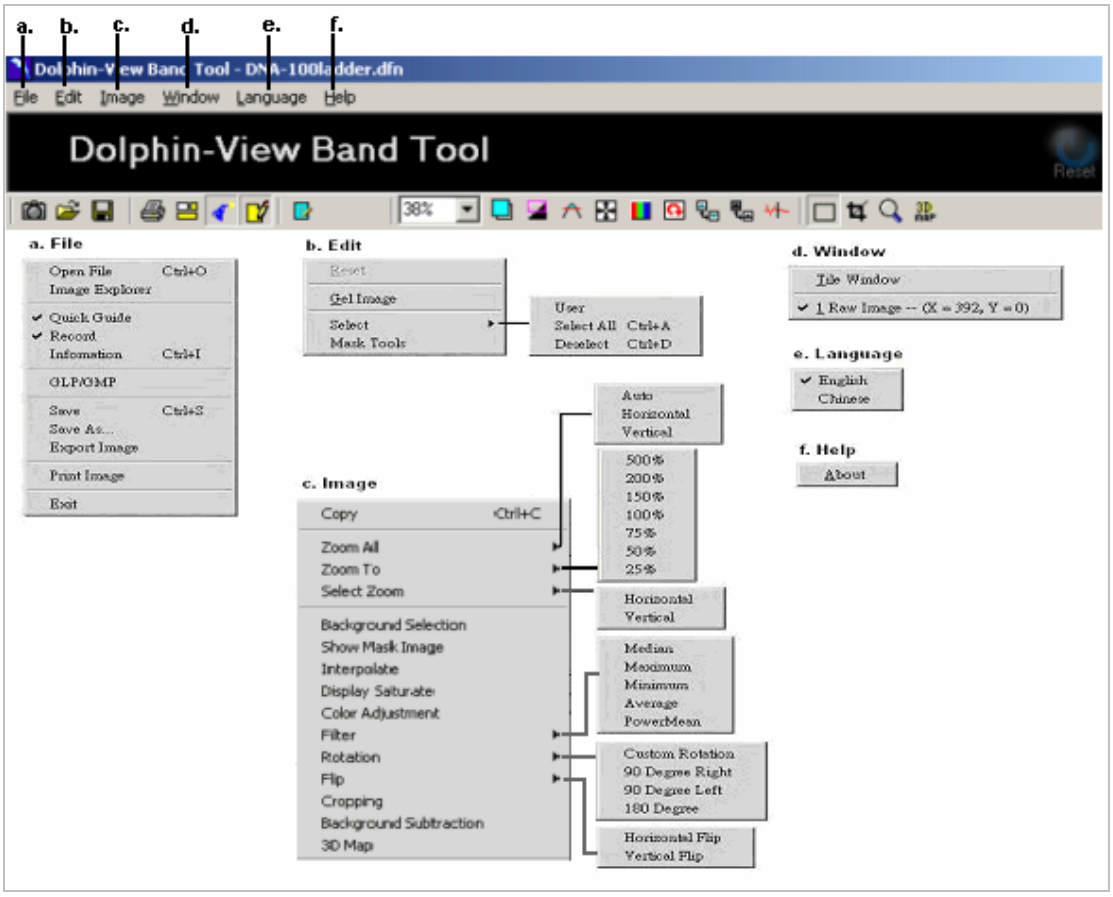
II-E-5 Version

Insert upgrade disk and touch “Upgrade” to upgrade program to latest version. Turn off Dolphin-View’s main power according to the instructions. New version is now installed and ready to run

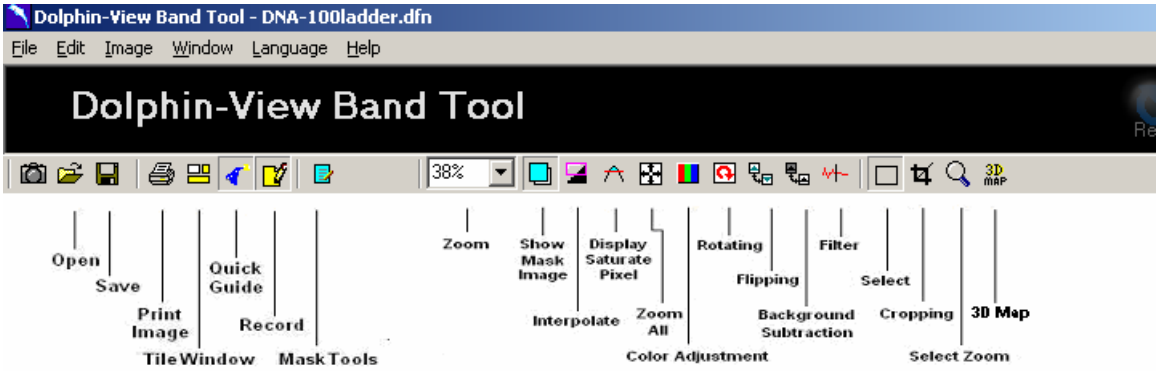
Go back to “Setup Menu”. (See II-E)

D-3. Dolphin-View Band Tool Analysis Software

D-3-1 Toolbar Introduction:



Icon introductions



Open image tool:

Click to open an image from hard disk, USB disk, CD-ROM etc.

Save tool:

Click to save the file.

Print image tool:

Click to print the image.

Tile window tool:

Arrange multiple windows on same screen. User will be able to work on multiple windows simultaneously, switching between the windows is not needed.

Quick guide tool:

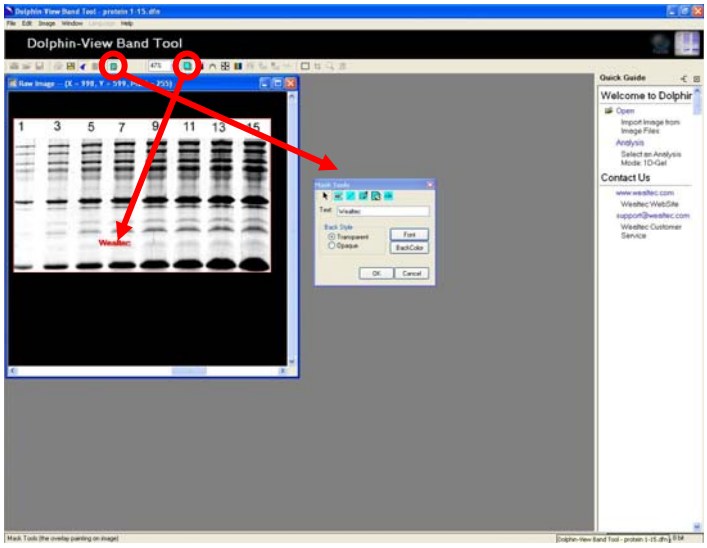
Open a user-friendly tool window containing all the essential tools based on the type of analysis. The quick guide tool window will be displayed on the right of user's working window.

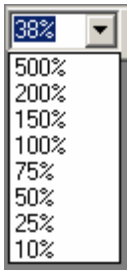
Record tool:

Keep track of 7 manipulations on the image before user begins the analysis. User can switch back to previous actions by double clicking on the "record" icon followed by double clicking in the "History Record" pop-up window. Record tool only tracks the previous actions where the original image data has been modified.

Mask tool

Allows user to add text, line on a mask with rubber and clean tool to edit. Assume a text "Wealtec" is labeled. While writing the text it will appear on the image and upon clicking "OK" button the "Show mask image tool" button will be selected automatically indicating showing the mask.



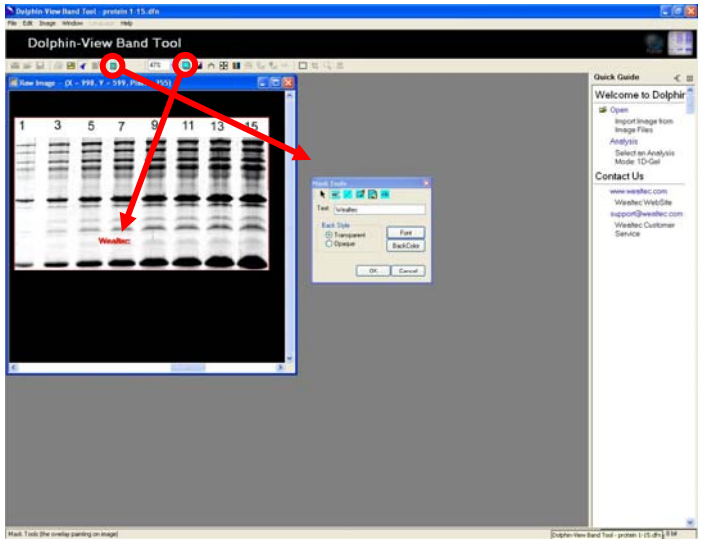


Zoom tool:

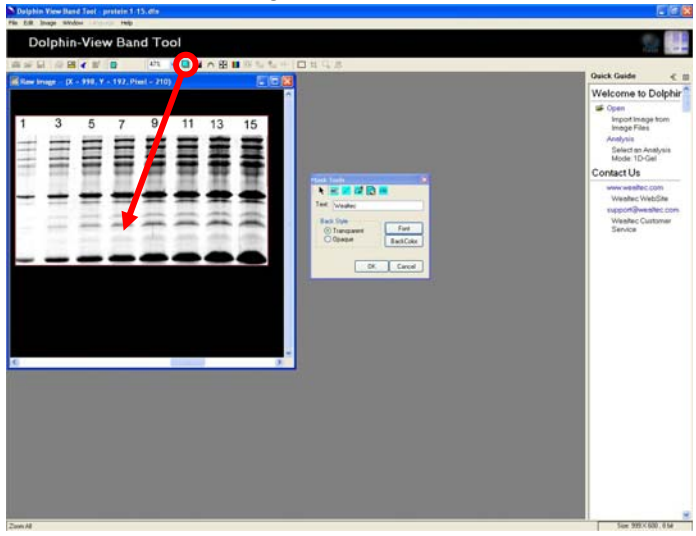
Allows user to select the view of the desired zooming size.

Show mask image tool:

Show or hide the edited text or lines mask on the image. Selecting or deselecting this tool allows the user to see or hide the edited labeling text or lines on the Image.



Deselecting this tool allows edited labeling text or lines to be hidden on the Image.



Interpolate tool:

Smoothen the border of the image. This tool only changes the image outlook on the screen and will not change the image data.

a) Before interpolation

b) After interpolation

Display saturate pixel tool:

The saturated pixel will be displayed as a warning to advice user of potential inaccurate results.

Zoom all tool:

Magnify the whole image to fit the screen. User can choose to magnify the image horizontally or vertically.

Color adjustment tool:

Allows user to adjust the brightness, contrast, histogram and color of the image and the background. Clicking on the tool will pop up a dialog box. Choose from various parameters to adjust the color and sharpness of user's image.

Rotating tool:

Allows user to rotate, reorient or adjust the angle of the image. Click on rotation icon and choose from custom rotation, 90 Degree right, 90 Degree left or 180 Degree. By choosing "Custom Rotation" tool, a new dialog box will pop up where user can either enter the value of rotation or click on "grid" to rotate manually. It is disabled under GLP/GMP mode.

Flipping tool:

Allows user to turn the image by 180 degrees horizontally (flip horizontal tool) or by 180 degrees vertically (flip vertical tool). It is disabled under GLP/GMP mode.

Background subtraction tool:

Allows user to define a region on the image as a background and subtracts the defined background intensity from the entire image. This tool is especially useful in the case where the background intensity is evenly distributed. It is disabled under GLP/GMP mode.

Filter tool:

Allows user to obtain the optimized image by filtering the noise. It is disabled under GLP/GMP mode.

Select tool:

Allows user to define a region on the image for selected zooming and cropping. Click on select tool and drag the box to the region of interest.

Cropping tool:

Allows user to cut and preserve the selected region on the image. The unselected portion of the image is deleted. It is disabled under GLP/GMP mode.

(**Note**: In order to enable or use this tool select the region first with “Select” tool)

Select zoom tool:

Magnify the selected image region. Click on Zoom tool and choose horizontally or vertically to magnify the selected region of the image.

(**Note**: In order to enable or use this tool select the region first with “Select” tool)

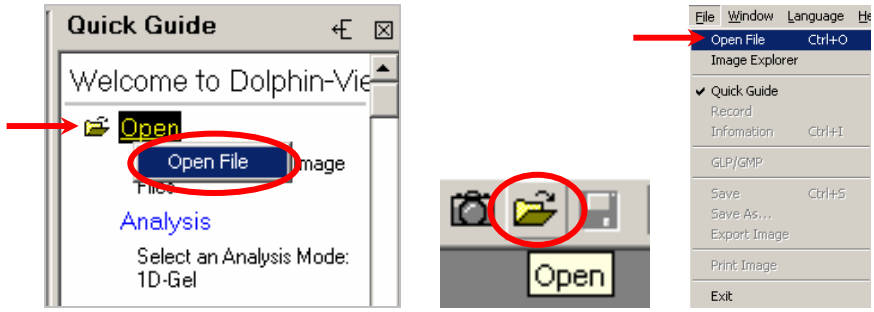
3D Map tool:

This shows the 3D profile of the selected image region.

(**Note**: In order to enable or use this tool select the region first with “Select” tool)

D-3-2. Import Image

1. Click on “Open” and select “Open File” from quick guide or “Open” icon, or select “Open File” from file menu to open gel
2. Select file and click “Ok”



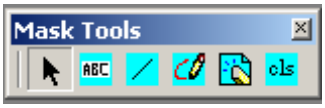
D-3-3. Image Enhancement

D-3-3-1. Image Annotation:

Mask Tools are the functional tools for text label, line label, pen signature, eraser and clear-all mask labels on the image. The size of text tag and line drawing on the image can be altered to the viewing size of image. They can not be moved and edited but can be removed by erasing with eraser. This option also allows user to show or not to show mask while viewing or printing the image.

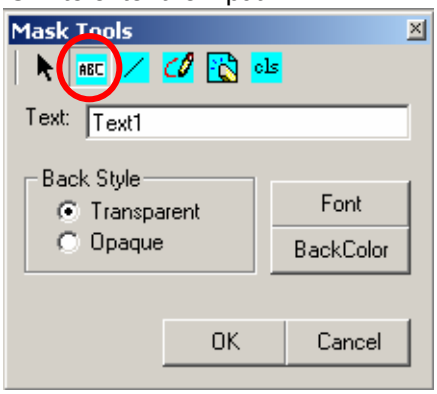
1. Adding text on mask:

   a.) Click "mask" icon on tool bar, mask tool window will pop-up.



   b.) Click "ABC" icon on mask tool window.

   c.) Use mouse pointer or cursor and click on image. A text dialog box will open and Text Tag will appear on image. Type the image title or the lane and band information in the Text Tag box and click "OK" to enter the input.



   Note: Adjust the position of text on the image by clicking and dragging the text with the mouse pointer or cursor to desired position before clicking "OK".

   d.) Choose the background style of the text as "Opaque" to highlight the text on image or "Transparent" for the text to simply appear transparently on image.

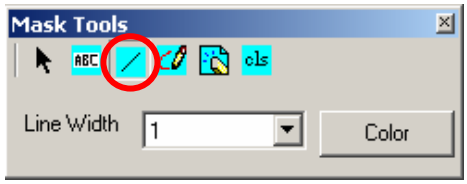
   e.) To highlight the text, choose the background color by clicking on "BackColor" from Text dialog box.

   f.) Click on "Font" icon to alter the font type, style, size, color and effects.

2. Adding line on mask:

   a.) Click "mask" icon on tool bar, mask tools window will pop-up.

b.) Click “line” icon on mask tool window and a line dialog box will pop-up.



c.) Select the line width from “Line Width” pull down menu.

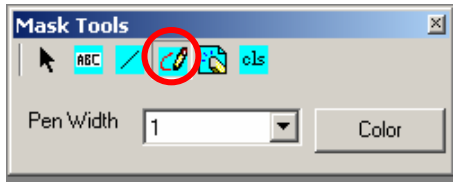
d.) Choose the line color from “Color” button.

e.) Drag the pointer or the cursor on the image to draw a line.

3. Drawing on mask:

a.) Click “mask” icon on tool bar, mask tools window will pop-up.

b.) Click “pen” icon on mask tool window and a pen dialog box will pop-up.



c.) Select the pen width from “Pen Width” pull down menu.

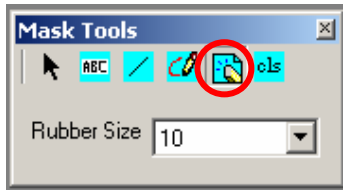
d.) Choose the pen color from “Color” button.

e.) Drag the pointer or cursor on the image to draw the irregular line.

4. Erase image (text, line, drawing) on mask

a.) Click “mask” icon on tool bar, mask tools window will pop-up.

b.) Click “eraser” icon on mask tool window and an eraser dialog box will pop-up.



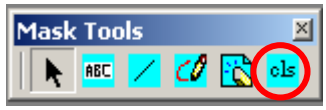
c.) Select the eraser size from “Rubber Size” pull down menu.

d.) Drag the pointer or cursor on the image to erase the image on mask.

5. Clear mask image

a.) Click “mask” icon on tool bar, mask tools window will pop-up.

b.) Click “cls” icon on mask tool window and a dialog window will pop-up



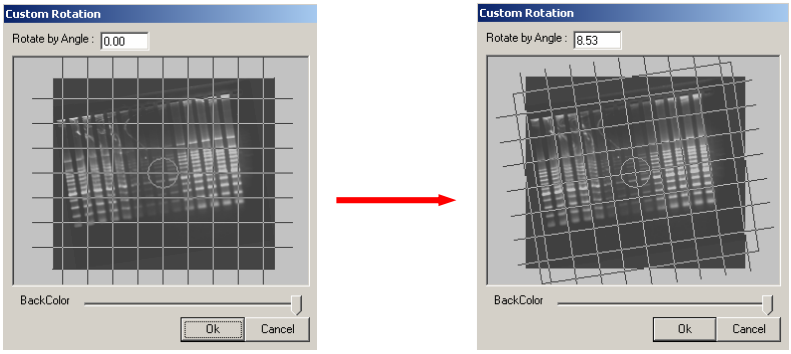
c.) Click “Yes” to clear mask image or click “No” to leave the dialog window.

D-3-3-2. Image Modification:

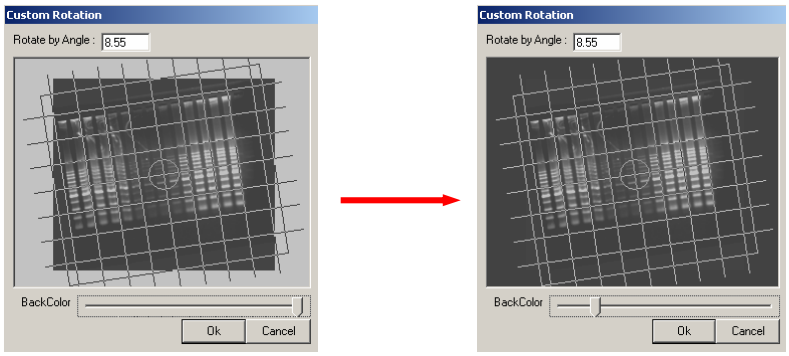
Previous actions or history record can be viewed by clicking “Record” on tool bar followed by double clicking on “History Record” pop-up window. Image data will be permanently changed after saving the file. The functions in this section are disabled under GLP/GMP mode.

a.) Rotating

1. Click “Rotating” icon on tool bar.
2. Select “90 Degree Right”, “90 Degree Left”, or “180 Degree” to rotate as required, or select “Custom Rotation” for any other desired rotation angles.
   a.) Adjust angle of image with input angle value or rotate the grill.



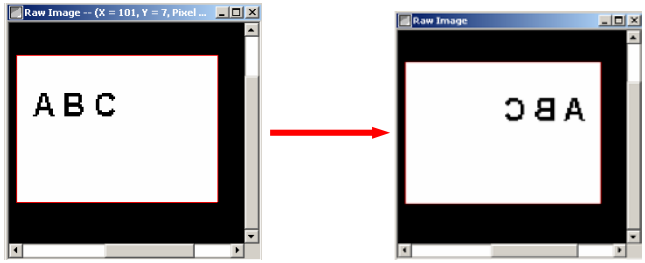
b.) Drag the slider bar to adjust the background color.



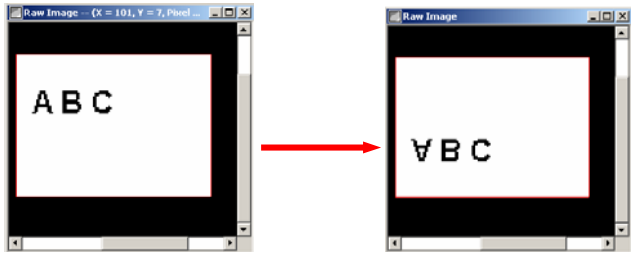
c.) Click “Ok” to rotate the image.

b.) Flipping

1. Click “Flipping” icon on tool bar.
2. Select “Horizontal Flip” or “Vertical Flip” to flip the image.
   a.) Horizontal flip

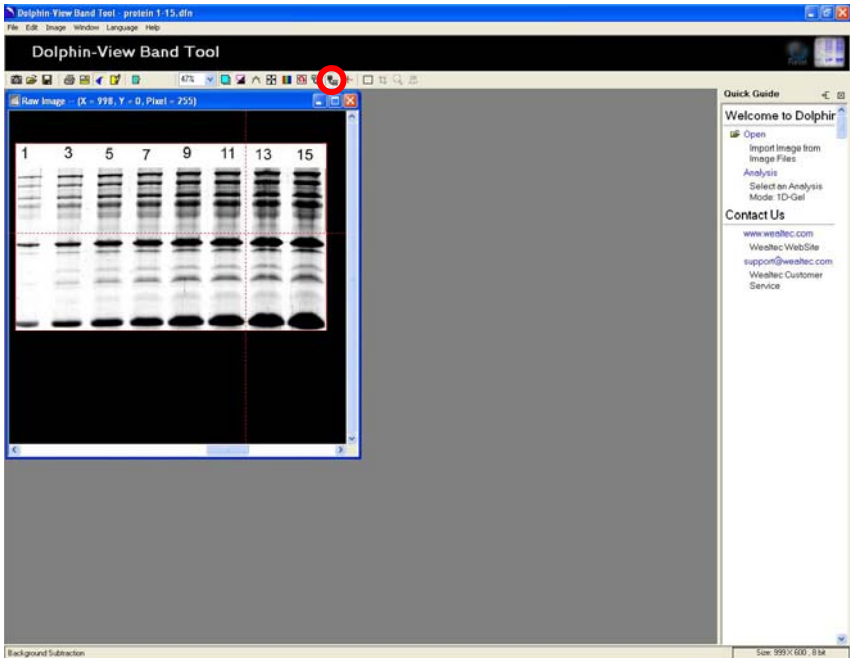


   b.) Vertical flip

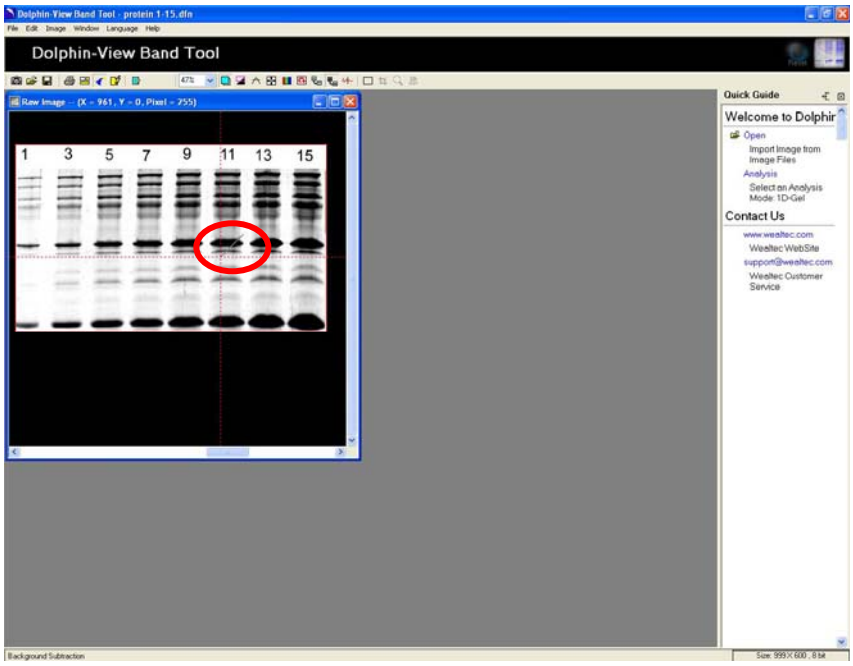


c.) Background subtraction:

1. Click “Background Subtraction” icon on tool bar.



2. Move cursor to draw a line on the image by click holding the left mouse on the image.

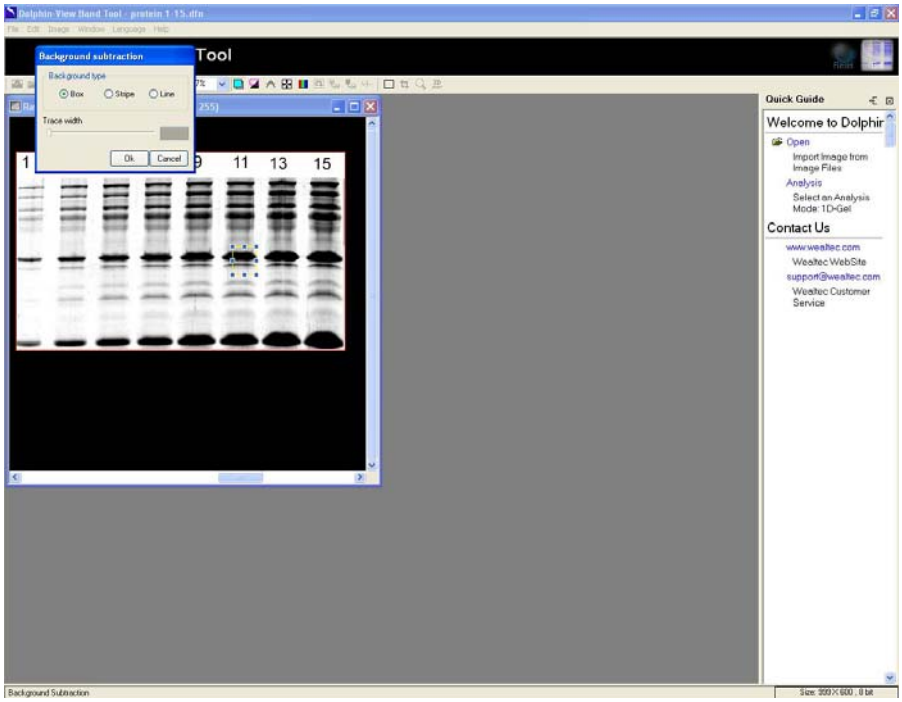


3. “Background subtraction” window will pop up. Select gel’s background type and trace width by selecting “Box”, “Stripe” or “Line”. Then click “Ok” to proceed.

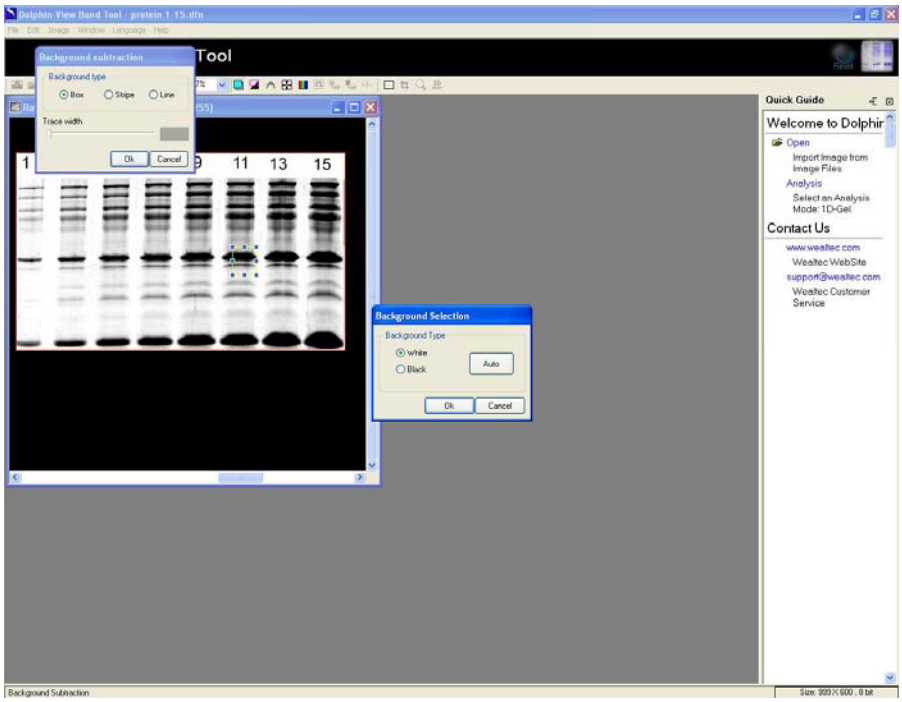
a. Box:
This function is applied to evenly distribute background intensity. It subtracts the selected area’s background intensity from the whole image.

b. Stripe:
This function is used for an uneven background from left to the right. Mark the background area from left to the right and drag the slider bar to adjust “Trace width”.

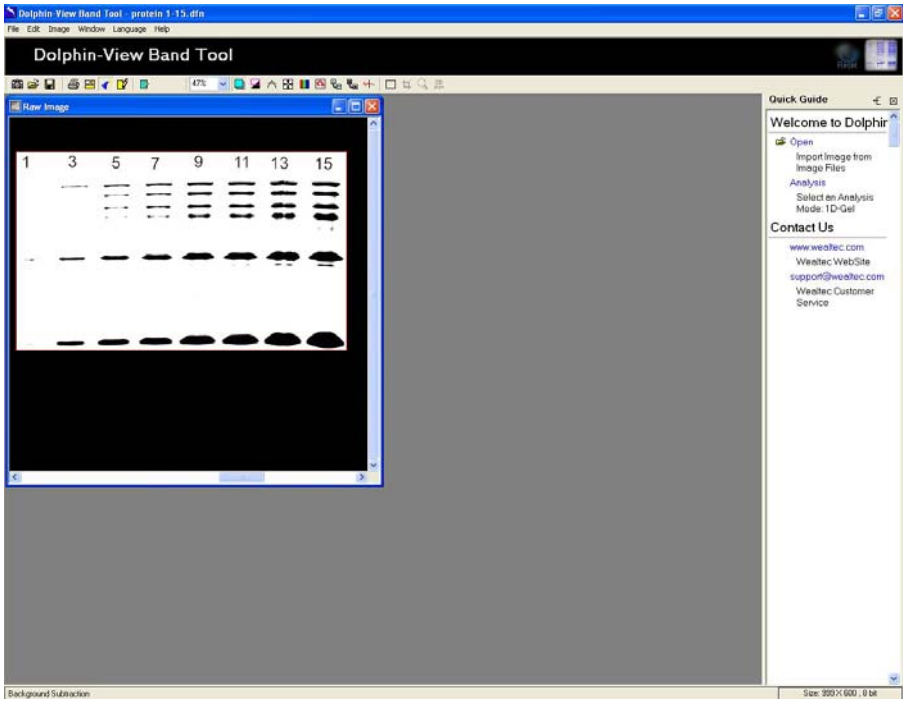
c. Line:
This function is applied for an uneven background from top to the bottom. Mark the background area from the top to the bottom and drag the slider bar to adjust “Trace width”.



4. Auto-background selection window will pop up. Select the background type and click “Ok” to proceed.



5. The resulting background subtracted image.



d.) Filter:

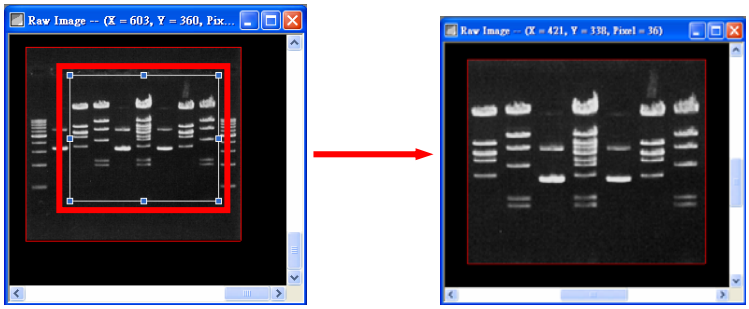
1. Click "Filter" icon on tool bar.

2. Select "Median", "Maximum", "Minimum", "Average", and "PowerMean" to remove noise from the image. Each filter dimension is 3 x 3 pixels.

    a. Median: It replaces the pixel with the median pixel in 3 x 3 filter.
    b. Maximum: It replaces the pixel with the maximum value of the pixels within 3 x 3 filtering window. This filter is suitable for reducing only white noise and will enlarge black noise. In other words, it will reduce "pepper noise" (specks darker than the background), but will aggravate "salt noise" (specks lighter than the background).
    c. Minimum: It replaces the pixel with the minimum value of the pixels within 3 x 3 filtering window. This filter is suitable for reducing only white noise and will enlarge black noise. In other words, it will reduce "pepper noise" (specks darker than the background), but will aggravate "salt noise" (specks lighter than the background).
    d. Average: It replaces the pixel with the averaged value in 3 x 3 filter.
    e. Power Mean: It replaces the pixel with the value that processed by power mean in 3 x 3 filter.

e.) Cropping:

1. Click "Select" icon on tool bar to define the desired region on the image.
2. Click "Cropping" icon on tool bar to delete unselected portion.



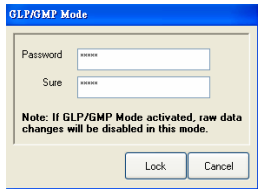
D-3-3-3. GLP/GMP mode:

When GLP/GMP function is activated, the image will be locked and cannot be modified. The modification function such as Rotating, Flipping, Background Subtraction and Filtering are disabled under GLP/GMP mode.

a.) Activate GLP/GMP mode:

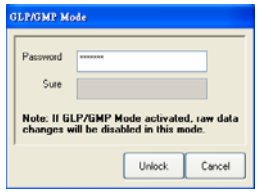
1. Open "GLP/GMP" dialog box by clicking "File" from menu and select "GLP/GMP".
2. Input password and reenter again to confirm. Click "Lock" to activate GLP/GMP mode.

NOTE: Password is individually pre-settable **ONLY by operator**. Therefore, please remember the password for deactivation of the GLP/GMP mode. **Without password, neither operator nor Wealtec can deactivate GLP/GMP mode for raw data changes**



b.) Deactivate GLP/GMP mode:

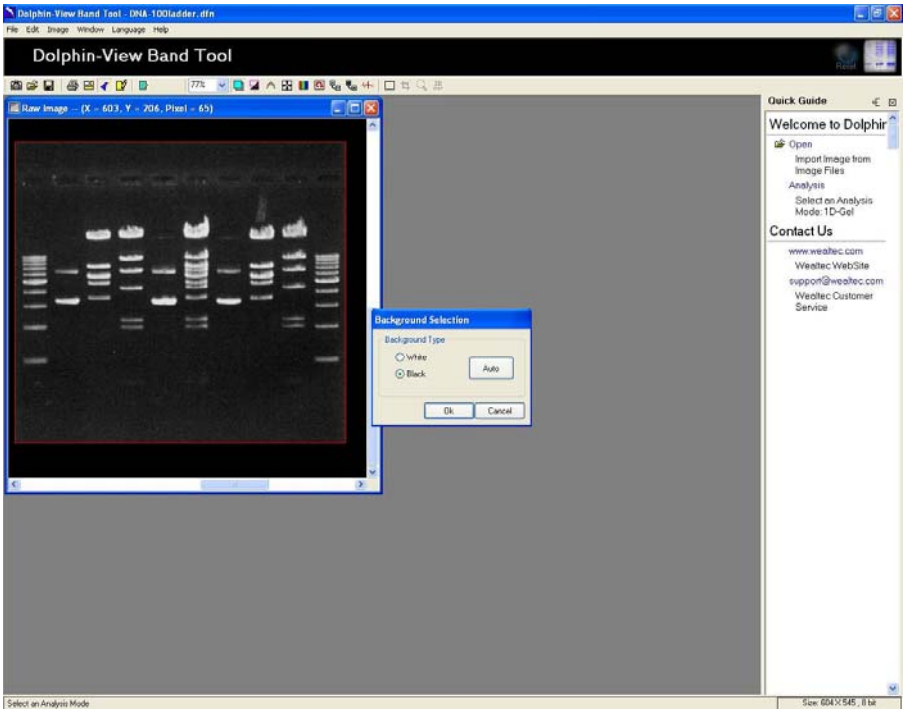
1. Open "GLP/GMP" dialog box by clicking "File" from menu and select "GLP/GMP".
2. Input password and click "Unlock" to deactivate GLP/GMP mode.



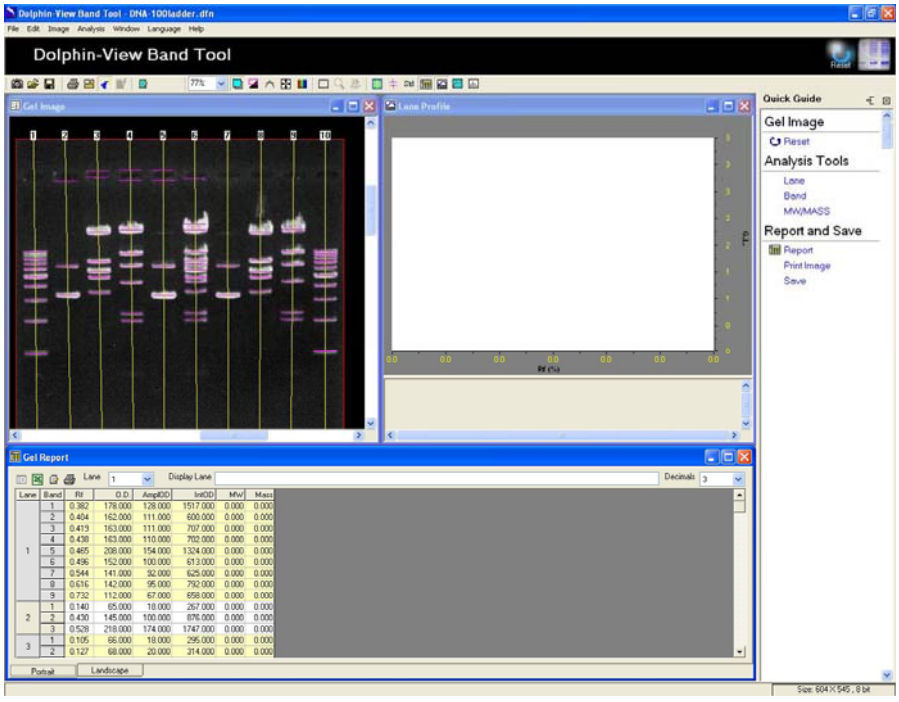
D-3-4. Image Analysis

1. Click “Analysis” from quick guide or “Gel” icon, or select and click “Gel Image” from edit menu to open gel analysis function.

2. Select the appropriate background and click “Ok” button to proceed.

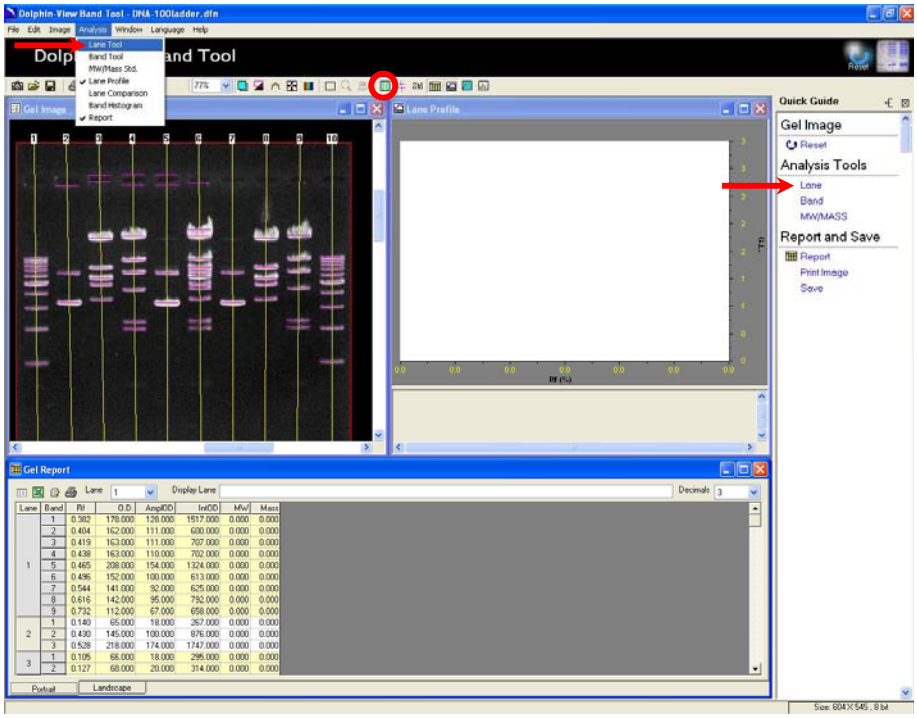


3. The program will define automatically the gel image, lane profile and gel report.

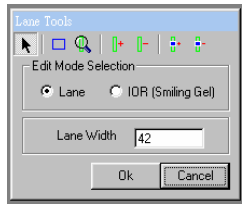


D-3-4-1. Lane Analysis

Click “Lane” from quick guide or “Lane Tool” icon, or select and click “Lane Tool” from analysis menu for lane identifying tool.



1. Lane tools



Arrow tool:

Allows user to select the lane of the interest and adjust the lane width and lane angle. The lane frame can also be adjusted to define the region of interest

Define region/Region of interest (ROI) tool:

Allows user to draw a lane frame to define an area of interest on the image. Only one region of interest can be defined at a time.

Lane finder tool:

Allows user to detect lanes automatically by Dolphin-View band tool analysis software within the defined region of interest.

Add lane tool:

Allows user to add lane manually within the defined region of interest.

Delete lane tool:

Allows user to delete a lane manually within the defined region of interest.

Add node tool:

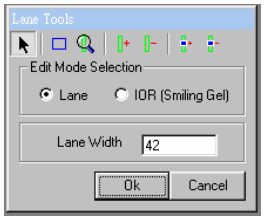
Allows user to add nodes at various positions along the lane. These nodal points can be used to adjust the lane borders to fit the curved or skewed lane. In "IOR (Smiling Gel)" mode, these nodal points can be used to define the analysis area of smiling gel.

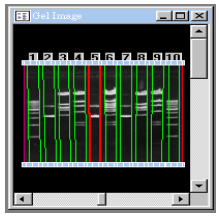
Delete node tool:

Allows user to delete the unwanted nodes.

Lane width:

Allows user to adjust the lane width by typing the desired number in the lane width dialog box on the lane tools menu. The minimum value that can be assigned for the lane width is 2.





Note: The lane width value applies to all the lanes that are defined in the image. Individual lanes cannot be assigned with different lane width values.

2. Defining lanes:

a.) Blue border and individual lanes denote the lane frame by green columns. Clicking on the lane of the interest, will highlight them by a red column.

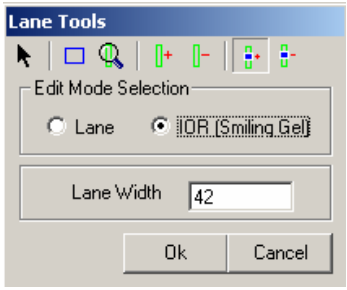
b.) User can adjust the lane frame represented by an anchor point at each corner of the image by holding and dragging the anchor point with the mouse pointer. All the individual lanes attached to lane frame will also move accordingly.

Note: User can select the “ROI” tool to draw the new area of interest on the image referred to as lane frame. User then can use the “Lane Finder” tool or “Add Lane” tool to define lanes in the region of your interest.

c.) Three anchor points at the upper and lower border mark each lane. Holding and dragging the middle anchor point allows adjusting the position and angle of each lane.

d.) To adjust for the skew of the gel and lanes, select “Add Node” from the “Lane Tools” dialog box and click on the lane at the skewed region. Then use the “Arrow Pointer” tool at the upper left corner of “Lane Tools” dialog box to drag and adjust the lane to fit the skewed region.

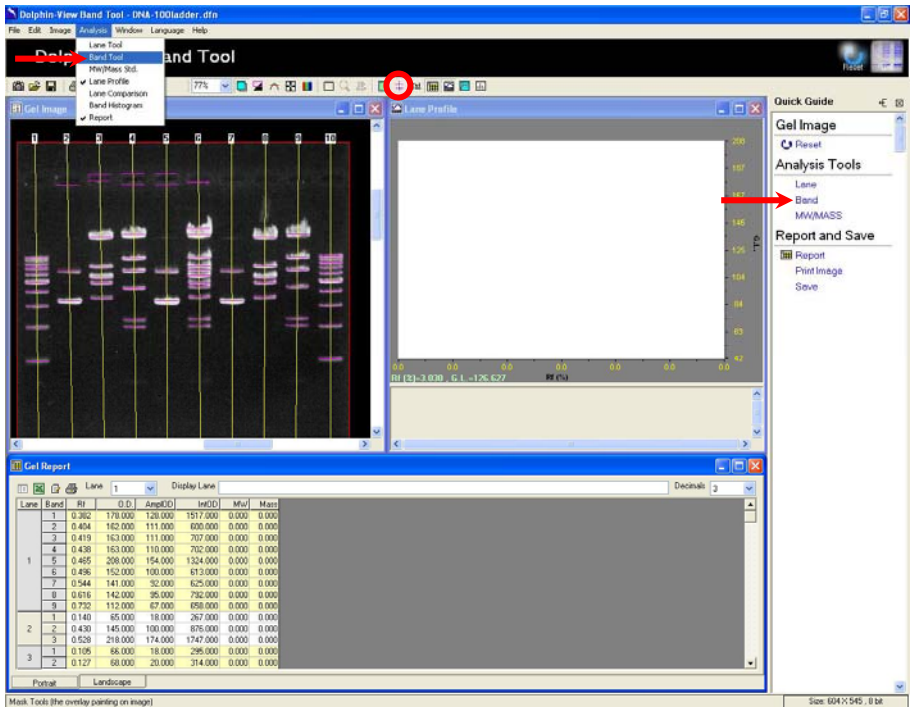
e.) To adjust the smiling gel, select “IOR (Smiling Gel)” mode from “Edit Mode Selection” in “Lane Tools” dialog box. Select “Add Node” and click on the gel board at the skewed region. Use the “Arrow Pointer” tool at the upper left corner of “Lane Tools” dialog box to drag and adjust the gel board to fit the skewed region.



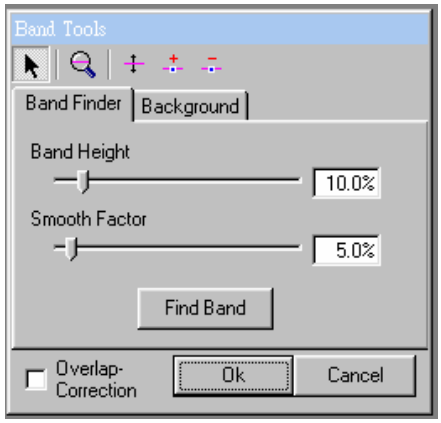
f.) Click “Ok” upon finishing the lane definition

D-3-4-2. Band Analysis

Dolphin-View band tool analysis software automatically identifies all the bands on your gel image. You can further edit the bands on your image by using the tools under the bands menu. Click “Band” from quick guide or “Band Tool” icon, or select and click “Band Tool” from analysis menu for band identifying tool.



1. Band tools:



Arrow tool:

Click the arrow tool to select and analyze the band of the interest.

Band finder tool:

Allows user to detect bands automatically on the lane(s). Click on Band finder button and two options will be available. Choose the “Selected Lane” command to detect bands only in the selected lane or choose “All” command to detect bands in all the lanes within the region of interest.

Move band tool:

Click move band tool to adjust or relocate the band along the lane.

Add band tool:

Allows user to add band which is not detected by Dolphin-View band tool analysis software

Delete band tool:

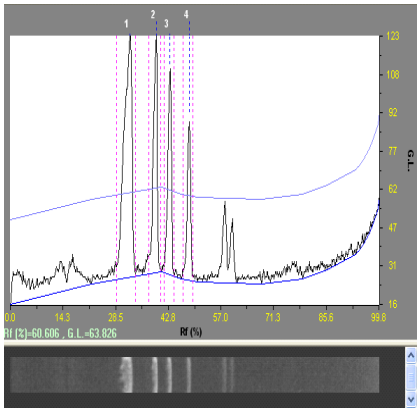
Click delete band tool to delete the bands that could be artifacts.

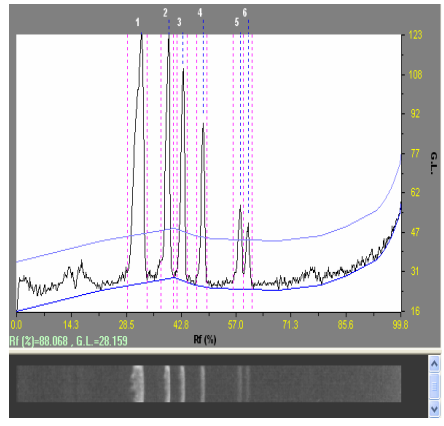
2. Band Height and Smooth Factor:

Dolphin-View band tool analysis software automatically detects all the bands on the image. Band height and Smooth factor function allows user to define the sensitivity of the band detection.

Band Height **Band Height:**

Increasing the band height would reduce the sensitivity of detection. This is particularly useful when the bands are strong and well defined. Decreasing the band height increases the sensitivity of detection. This is particularly useful when the bands are fading. Band height represents the detectable peak height of the band in lane profile window. As shown in the first figure below the upper line across the peaks. Fading bands represented by two small peaks are under the detectable range. The line passing under the peaks represents the background noise. Decreasing the band height value increases the sensitivity of the detection. As shown in the second figure below the upper line is passing across the small peaks. Now the fading bands are also detected by Dolphin-View band tool analysis software.





Smooth Factor **Smooth Factor:**

Smooth factor's function is a "noise filter for band profile" and the value of smooth factor is a "parameter for filter's sensitive". Existing default value is sufficient for normal operation, but the adjustable option is kept for special requirements.

3. Overlap correction:

Overlap correction is applying the Gauss-Mode operation mode to calculate the adjacent bands.

4. Defining bands:

a.) Choose the “Arrow Pointer” tool from the band tools menu and select a lane on the image. The bands in each lane are sequentially numbered from top to bottom. Further additions of bands in the same lane at any position are given subsequent numbers.

b.) Move the sliding bar corresponding to the band height function and adjust the sensitivity of band detection. Choose the band height parameter that best detects all the bands on the image.

c.) Click on “Add Band” button to add bands that are not detected by band finder after adjusting the band height parameter.

d.) Click on “Delete Band” button to delete bands that you determine as artifacts.

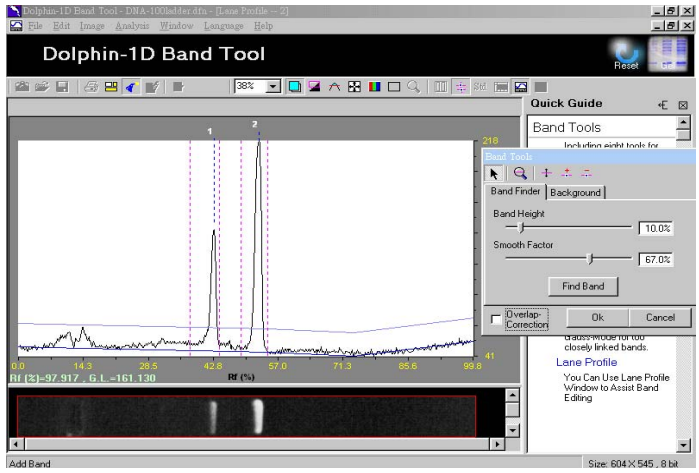
e.) Choose the “Move Band” tool to adjust the position of band marker.

Each band is marked with a line passing through the band and a square box located at the center of the line. To adjust the band marker position, select the “Move Band” function tool and click on the square box located on the band. Then drag the box to adjust the position of band marker.

Note: Band marker indicates the mobility of the band.

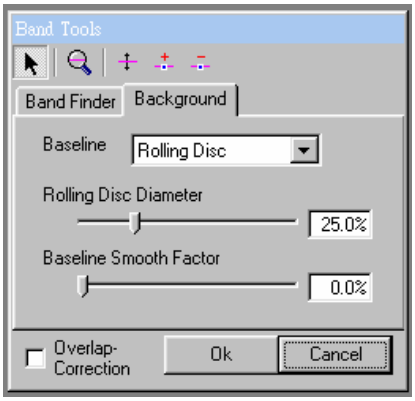
To predict the molecular weights of the bands more accurately, user can position the band marker to correspond exactly to band profile peak. Select the lane in which user wants to make band marker adjustments. Then click on “Lane Profile” icon on the toolbar. A lane profile window will pop up displaying the profile of each band in the lane.

Three lines mark each band profile. One line on either side of profile, mark the base of peak and the center -line marks the profile peak. Select the “Move Band” tool from the band tools menu and drag the band marker till it corresponds to center or tip of the profile peak.



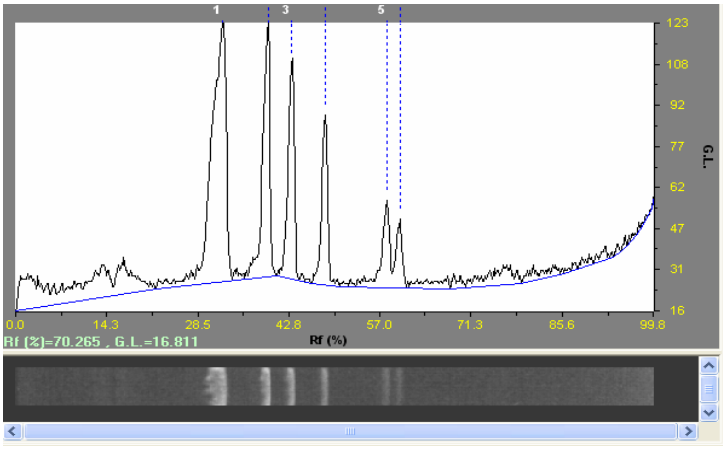
5. Baseline settings:

Dolphin-View band tool analysis software allows user to edit different background parameters to best subtract the background noise from the image. Click the background page in the “Band Tools” dialog box.



6. Background Baseline:

The background baseline is represented by a blue line at the base of peaks in the lane profile window. Allows user to choose different baseline settings from the baseline dialog box:



a.) Rolling Disc: Rolling disc function chooses the optimal background baseline for the image automatically.

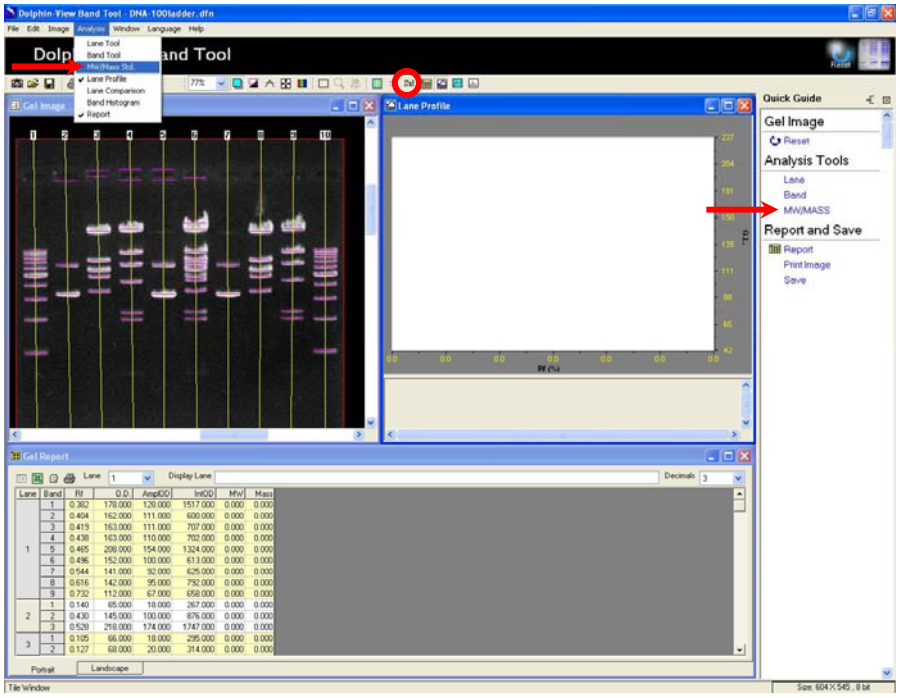
b.) Min: The minimum function chooses the lowest peak baseline as the background.

c.) Zero: The zero function doesn’t set any baseline for the background.

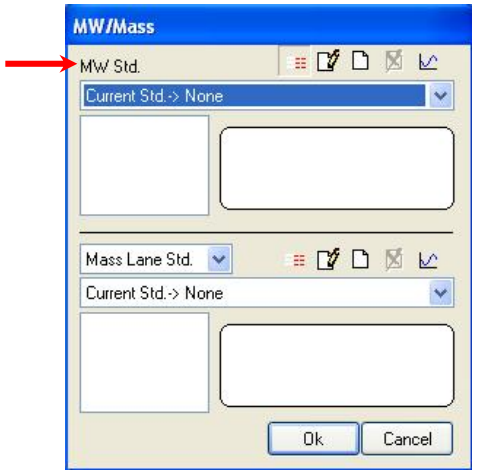
Note: If the user made any changes on the default background settings, ensure to check the “Overlap-Correction” as the Gauss-Modeling dialog box will pop up and if it is checked then click “Auto Fit” in Gauss-Modeling dialog box for the changes to take effect.

D-3-4-3. MW/Mass analysis:

Click “MW/MASS” from quick guide or “MW/MASS Std.” icon, or select and click “MW/MASS Std.” from analysis menu for molecular weight and mass calculation tool.



1. MW tools:

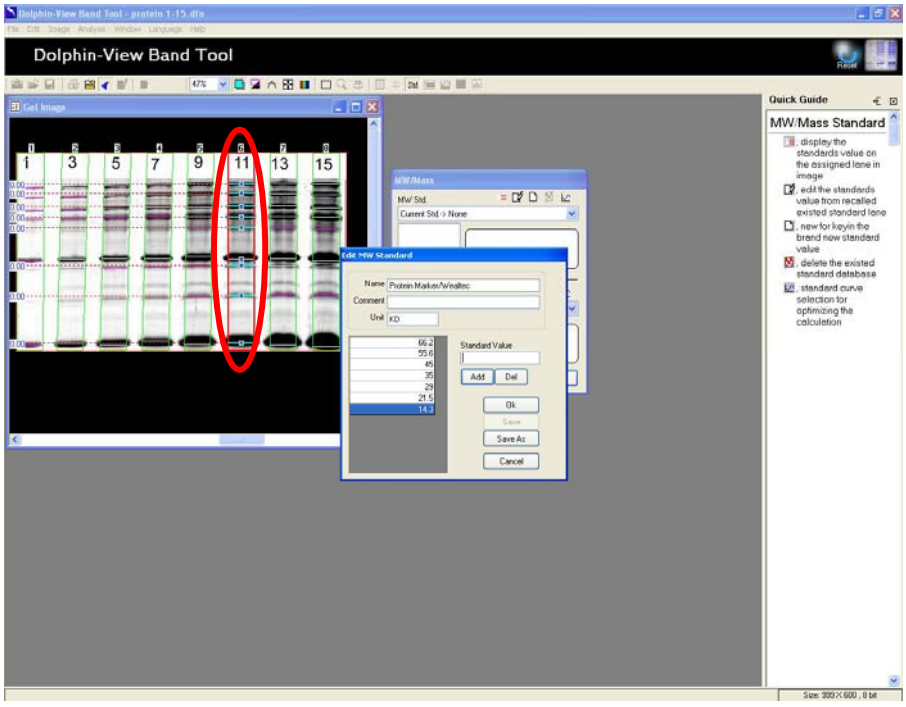


Display value on image tool:

Allows user to display the molecular weight standards data of bands on the image. Choose a molecular weight standard from the MW Std. pull down menu and click on a lane or multiple lanes on the image. The software automatically assigns the molecular weight standards to the bands in the lane and displays them on image.

Edit tool:

Click edit tool to edit any current saved molecular weight standard data. Select or deselect the standard lane on the image by clicking mouse on the lane. More than one standard lane can be selected. By pointing the cursor on the blue node, clicking the mouse on the band allows user to select or deselect the standard band as the rest of the bands will renew the ranking of standards.



New tool:

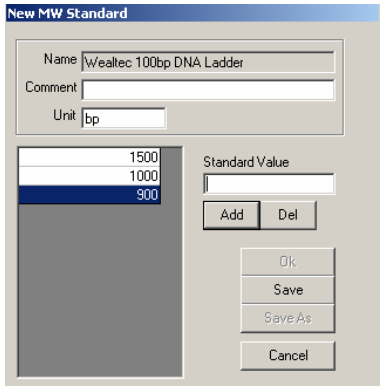
Allows user to create and add new molecular weight standard data if the loaded standard on the image does not exist from the standard list. Click “New” tool for MW Std. in the dialog box.

i. Input new standard name and click “OK”.

ii. Input standard’s value and click “Add” to add the value to the left list.

iii. To delete wrong value, select from the left list and click “Del”.

iv. Click “Save” and “Ok” to go back to “MW/MASS” window



Note: Name: Give a “name” to a molecular weight standard.

Comment: Specific comment or note for this molecular weight standard.

Unit: Unit of the standard value, ex. DNA use “bp”, protein use “KDa” and etc.

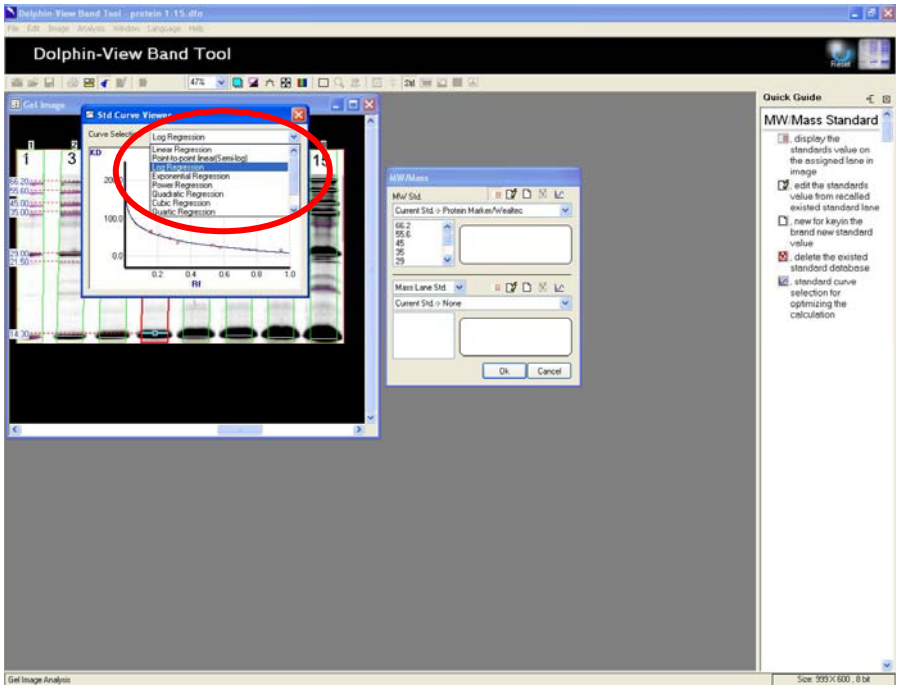
Add/Del: Add or delete a standard value into or from new molecular weight standard list.

Delete tool:

Click to delete molecular weight standard from the list.

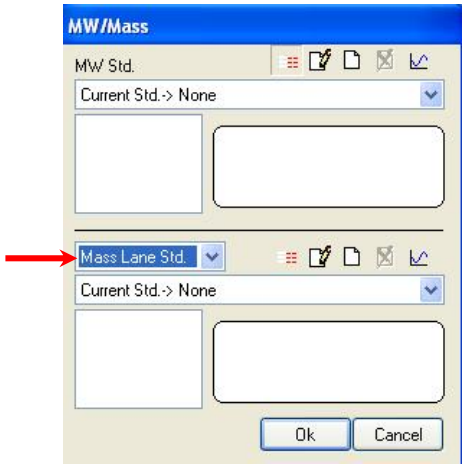
Standard curve tool:

The Standard curve tool is applied to select the best curve fit for the standards curve on the image. Select the molecular weight standards lane on the image then click on the standard curve button. Choose the best curve fit for specified standards from curve pull down menu.



2. MASS tools:

a.) Mass Lane Standard

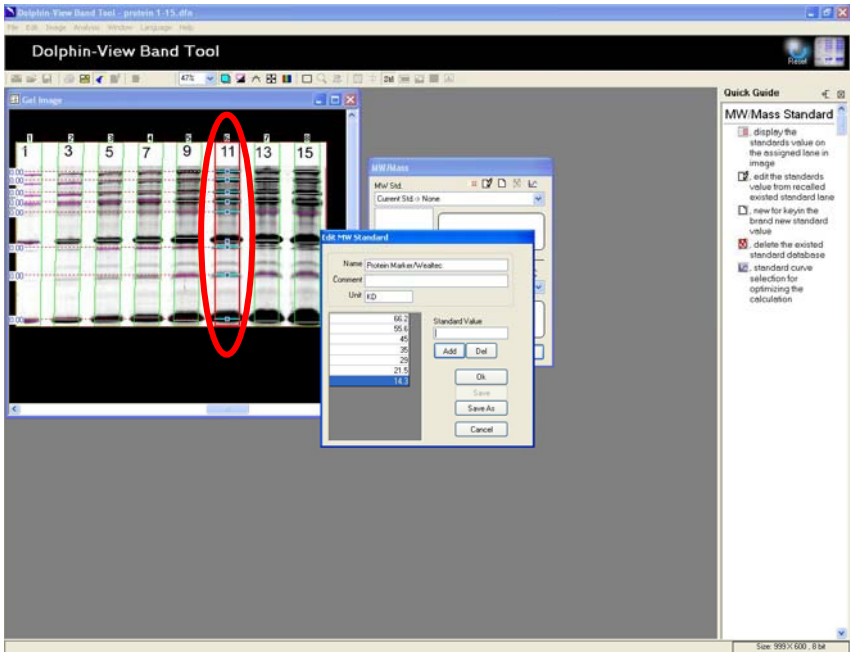


Display value on image tool:

Click to display the mass standards data of bands on the image.

Edit tool:

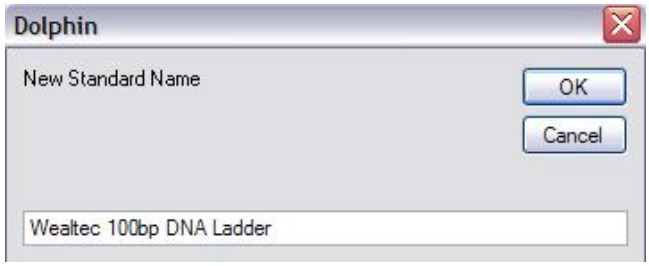
Click edit tool to edit any current saved molecular weight standard data. Select or deselect the standard lane on the image by clicking mouse on the lane. More than one standard lane can be selected. By pointing the cursor on the blue node, clicking the mouse on the band allows user to select or deselect the standard band as the rest of the bands will renew the ranking of standards.



New tool:

Allows user to create and add new mass standard data if the loaded standard on the image does not exist from the standard list. Click “New” tool for Mass Lane Std in the dialog box.

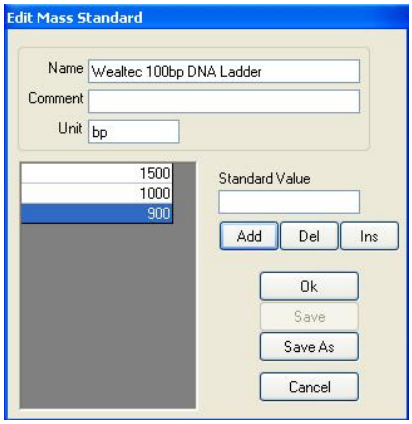
i. Input new standard name and click “OK”.



ii. Input standard’s value and click “Add” to add the value to the left list.

iii. To delete wrong value, select from the left list and click “Del”.

iv. Click “Save” and “Ok” to go back to “MW/MASS” window.



Note: Name: Give a “name” to a mass standard.

Comment: Specific comment or note for this mass standard.

Unit: Unit of the standard value, ex. DNA use “bp”, protein use “KDa” and etc.

Add/Del: Add or delete a standard value into or from new mass standard list.

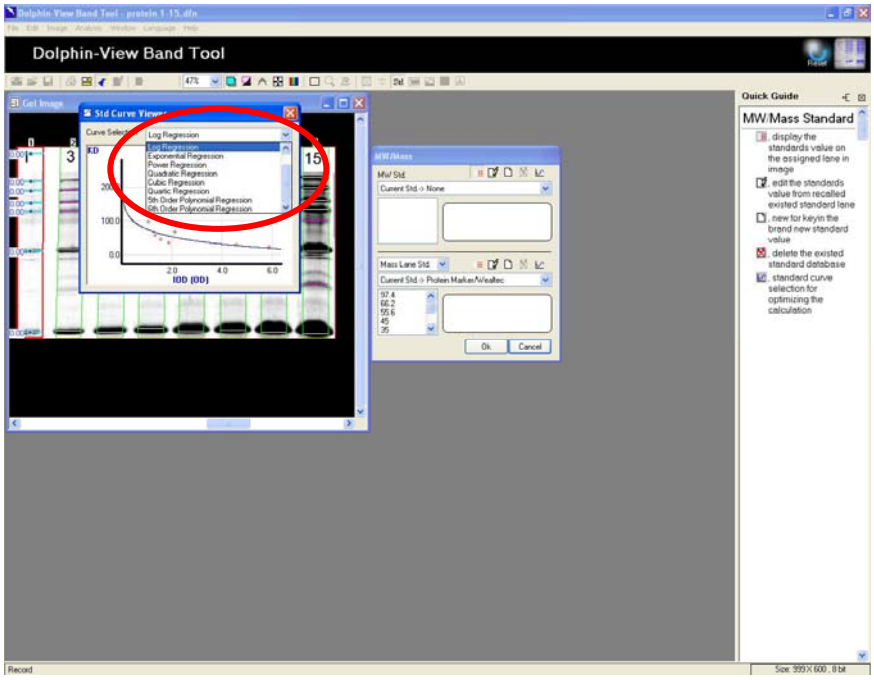
Ins: Insert a new standard value into the new mass standard list.

Delete tool:

Click to delete mass standard from the list.

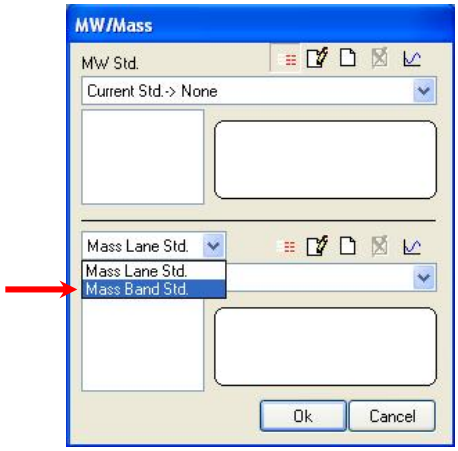
Standard curve tool:

Allows user to select the best curve fit for the mass standards on the image. Select the mass standards lane on the image and then click on the standard curve button. Choose the best curve fit for specified standards from curve selection pull down menu.



b.) Mass Band Standard

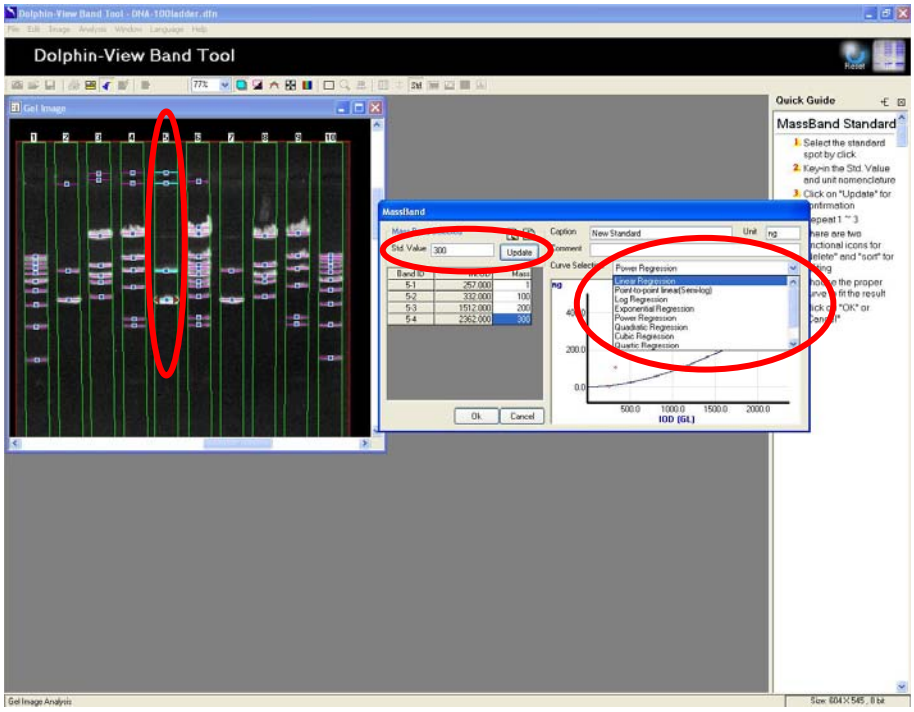
Select and click the “Mass Band Std.” from mass standard pull down menu



i. Select by clicking the Mass bands standard on the image, input and update the mass value individually in the Mass Band window. Use left click mouse to select and right click mouse to deselect the Mass bands.

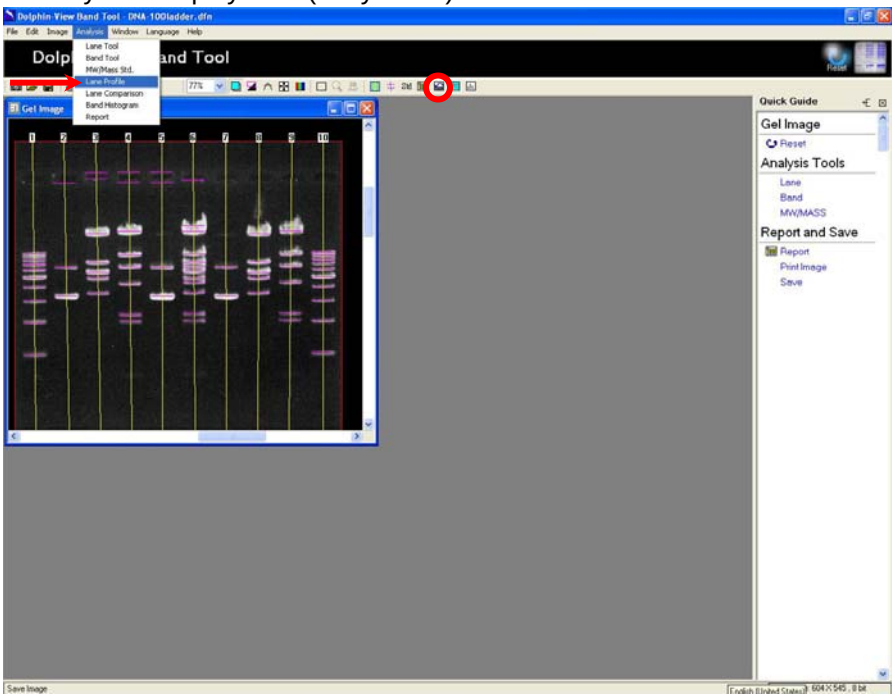
ii. Input the caption, unit and comments and choose the best curve fit for specified standards from curve selection pull down menu in Mass Band window.

iii. Click “Ok” to go back to “MW/MASS” window.

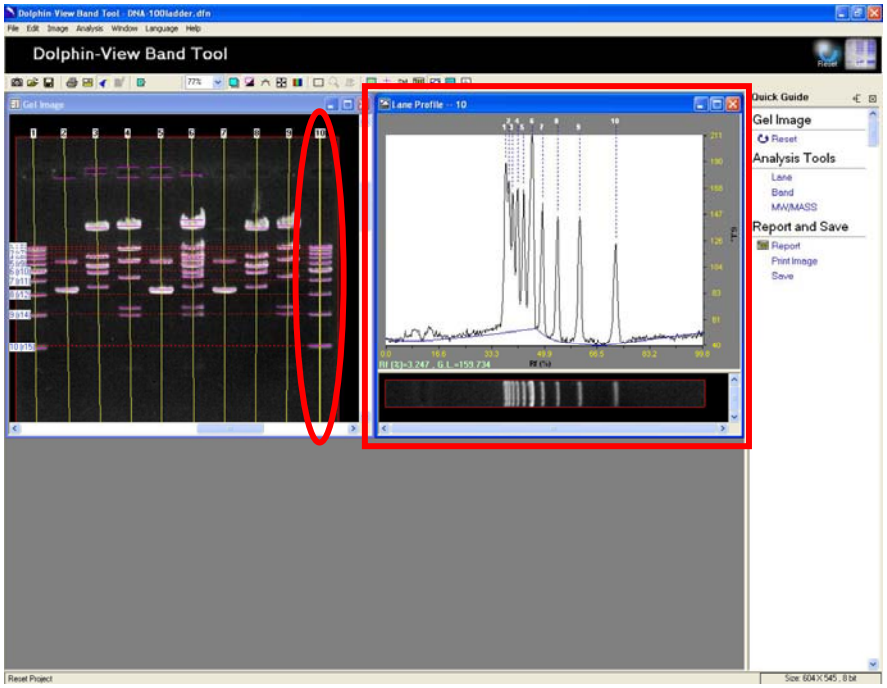


D-3-4-4. Lane Profile

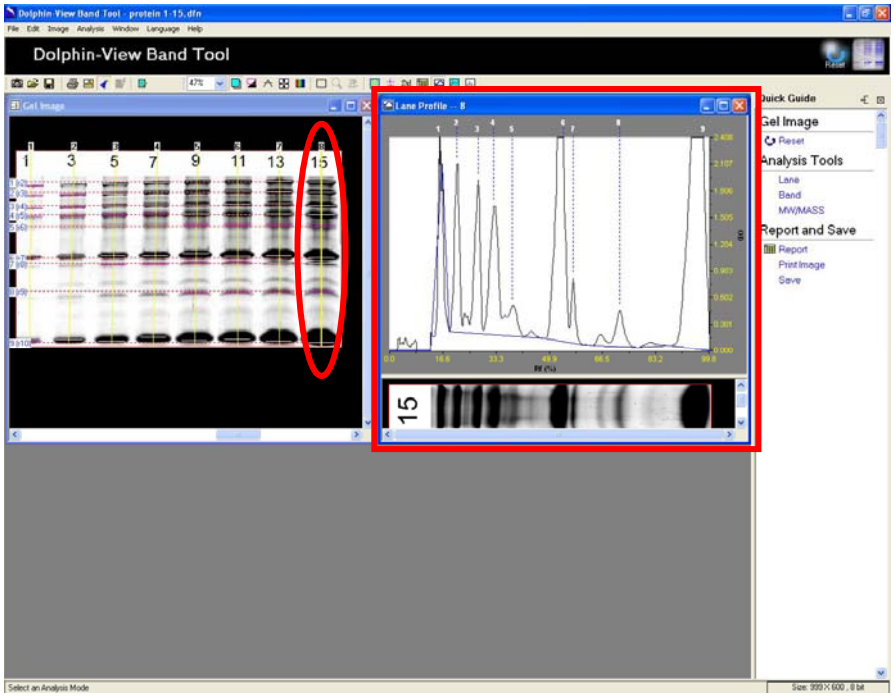
Click “Lane Profile” icon, or select and click “Lane Profile” from analysis menu to view the selected lane profile. For protein analysis lane profile displays OD (Optical Density) versus Lane and for DNA analysis it displays G.L (Gray Level) versus Lane.



Given below is an example of DNA analysis image for selected lane profile.

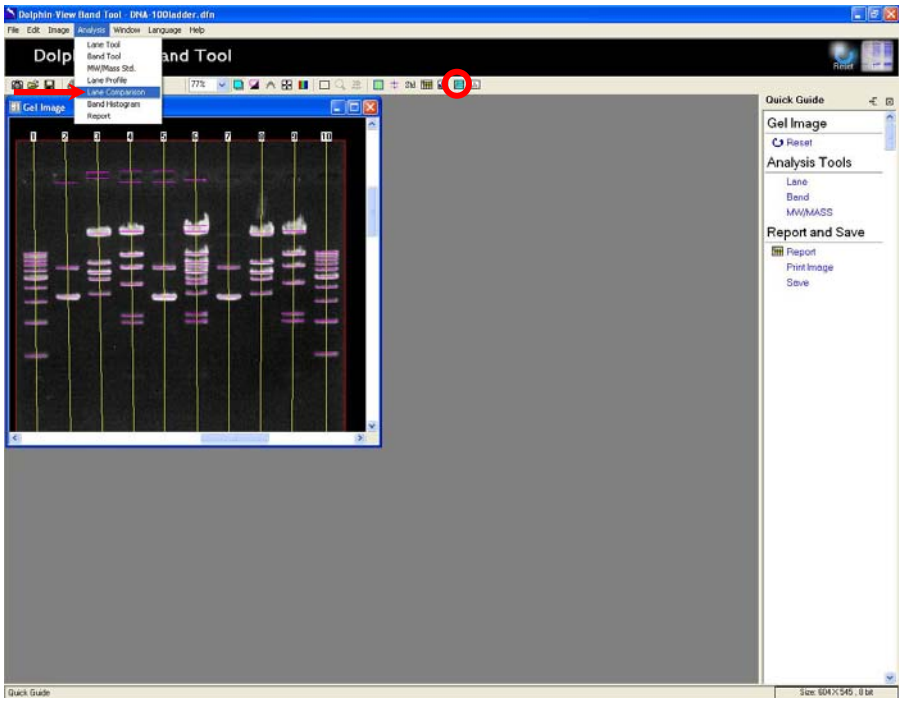


Given below is an example of protein analysis image for selected lane profile.

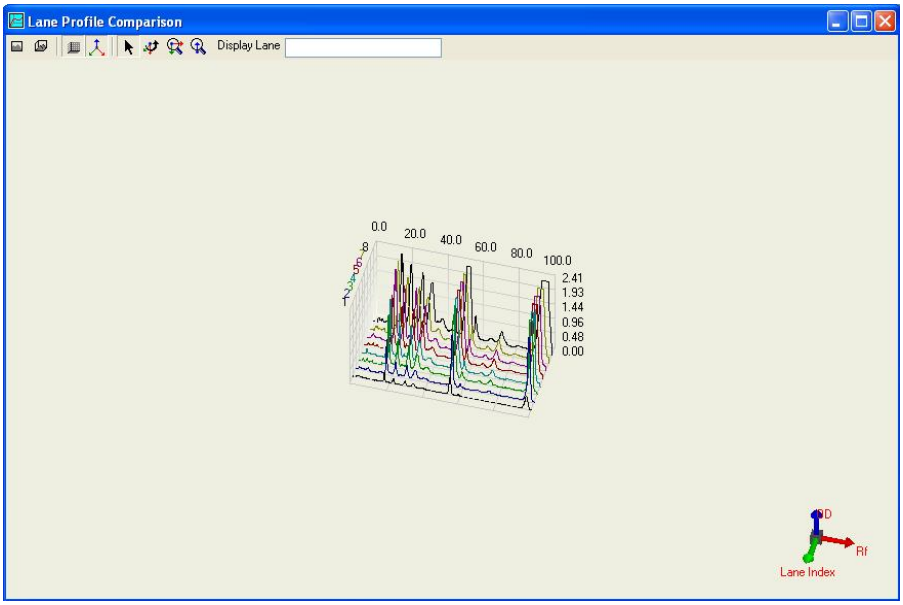


D-3-4-5. Lane Comparison

Click “Lane Profile Comparison” icon, or select and click “Lane Comparison” from analysis menu to view all the lane profile of the image in 3D.



In default mode the Lane Profile Comparison window will display all the lanes from the image in 3D.



View front tool

Click this tool to convert the image from 3D Map to 2D Map.

View custom tool

Click this tool to return back the image to default 3D Map image.

Show frame tool

Select this tool to display coordinate frame on the image.

Show small coordinate tool

Select this tool to display 3D coordination axis of the image at the right bottom of the window.

Move tool

Select this tool in order to move the 3D Map image on the window using cursor.

Rotate tool

Select this tool to rotate the 3D Map image using left mouse click. In general while using any other tools to rotate the 3D image right mouse click can be used.

Map zoom tool

Select this tool to enlarge or shrink the 3D Map image. Click holding the left mouse and moving cursor to the right will enlarge the 3D Map image and moving the cursor to the left will shrink the 3D Map image.

Level zoom tool

Select this tool to enlarge or shrink the single dimension of the OD axis. Click holding the left mouse and moving cursor to the right will enlarge the OD axis of the 3D Map image and moving the cursor to the left will shrink the OD axis of the 3D Map image.

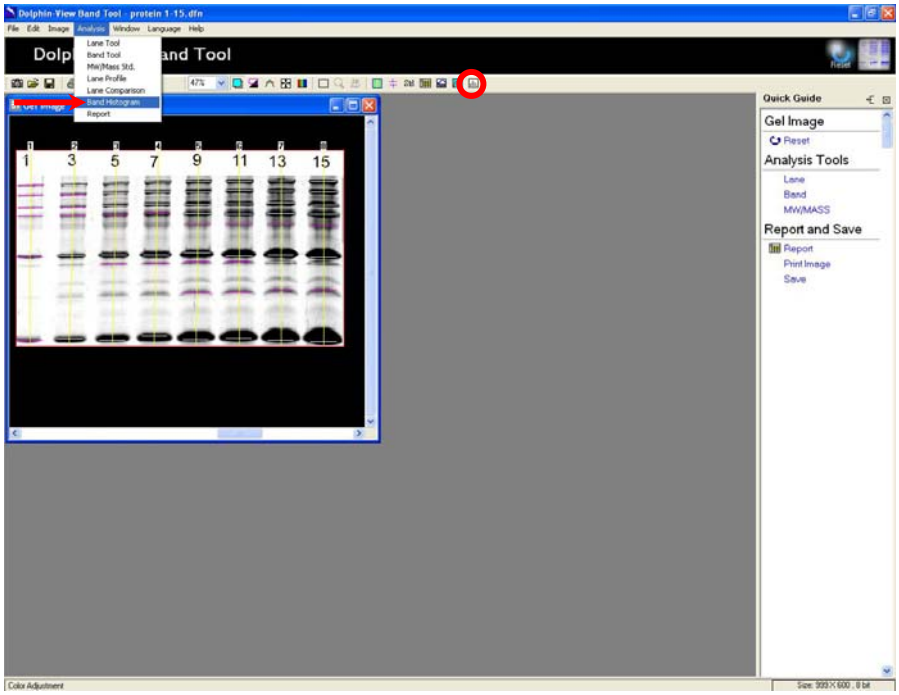
Display lane:

Choose a particular lane or few lanes of interest to be displayed by typing the lane number(s) in the display lane dialog box.

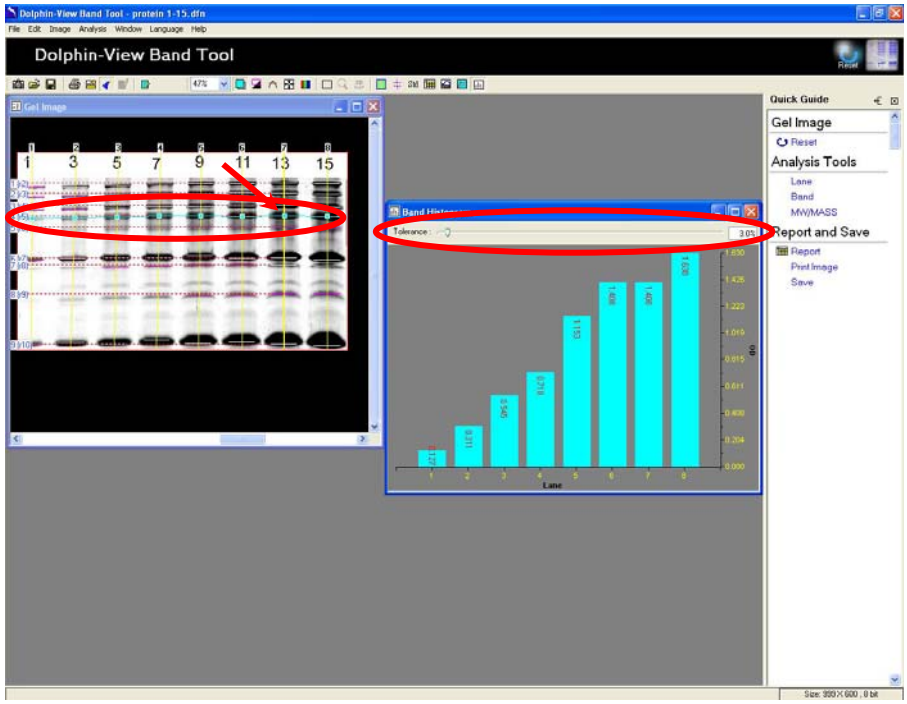
Note: For multiple lane numbers, separate each lane number by a comma.

D-3-4-6. Band Histogram

Click “Band Histogram” icon, or select and click “Band Histogram” from analysis menu to view the band profile histogram.

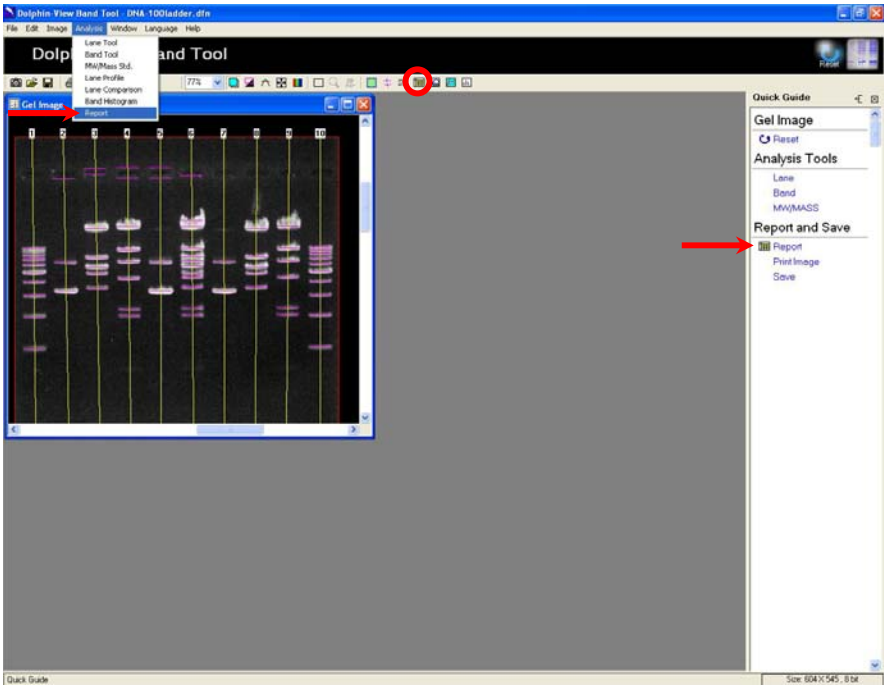


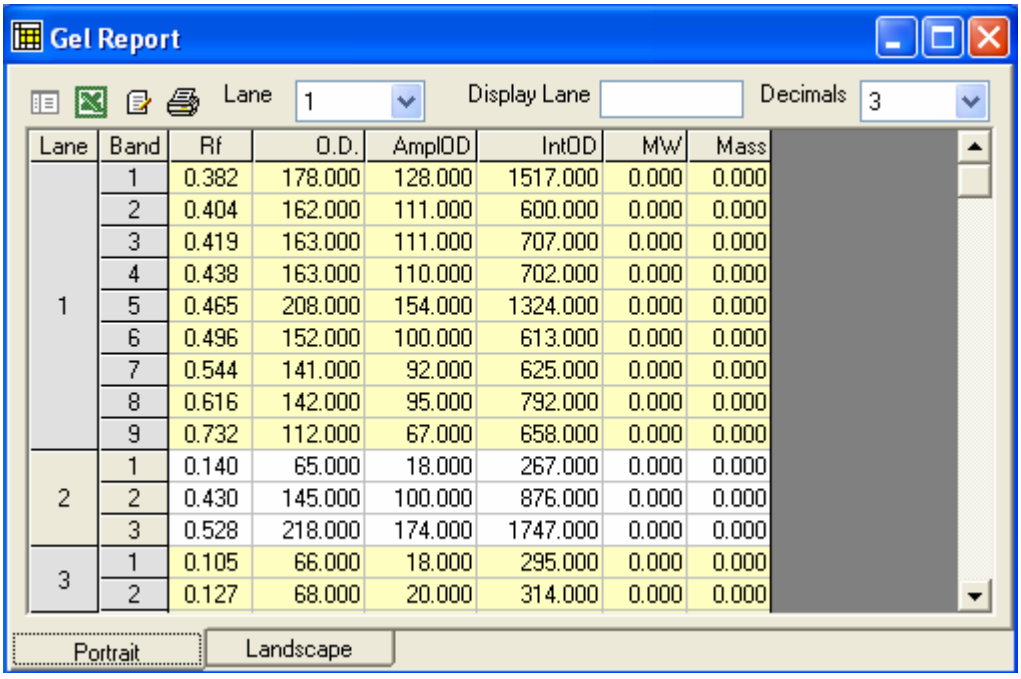
Click on any desired band profile or lanes to view the representation of band profile histogram. “Tolerance” in band histogram is the percentage of Relative Fragment Position (Rf.) Value to reference band (Recommended: 0.2% to 10%). For protein analysis band histogram displays OD (Optical Density) versus Lane and for DNA analysis it displays G.L (Gray Level) versus Lane.



D-3-4-7. Report

Click “Report” from quick guide or “Report” icon, or select and click “Report” from analysis menu to view all the band information.





Lane	Band	Rf	O.D.	AmplOD	IntOD	MW	Mass
1	1	0.382	178.000	128.000	1517.000	0.000	0.000
	2	0.404	162.000	111.000	600.000	0.000	0.000
	3	0.419	163.000	111.000	707.000	0.000	0.000
	4	0.438	163.000	110.000	702.000	0.000	0.000
	5	0.465	208.000	154.000	1324.000	0.000	0.000
	6	0.496	152.000	100.000	613.000	0.000	0.000
	7	0.544	141.000	92.000	625.000	0.000	0.000
	8	0.616	142.000	95.000	792.000	0.000	0.000
	9	0.732	112.000	67.000	658.000	0.000	0.000
2	1	0.140	65.000	18.000	267.000	0.000	0.000
	2	0.430	145.000	100.000	876.000	0.000	0.000
	3	0.528	218.000	174.000	1747.000	0.000	0.000
3	1	0.105	66.000	18.000	295.000	0.000	0.000
	2	0.127	68.000	20.000	314.000	0.000	0.000

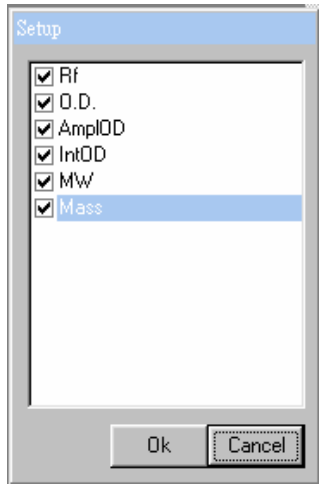
The default setting for the report window displays eight columns with lane and band information in the first two columns respectively. The next six columns describe the Rf, OD, Int.OD, Ampl.OD, MW and Mass of bands respectively.

- Rf: Relative Fragment position. It calculates the distance from start point (0.0) of the lane to the end of the lane which is located at the end of the gel. By adjusting the value from lane tool the standard point can be adjusted.
- OD: Optical Density. The value is set from the 256 partitions from black to white.
- Int. OD = Band area OD Integration value
- Ampl. OD = OD – background OD
- MW: Band Molecular Weight
- Mass: Band Molecular Mass

Note: The band information out of the standard curve range is displayed as N/A (not available) to minimize miscalculations.

Setup tool:

To change the band information display, click on “Setup” icon at the upper right corner of the report window. Then select and check the items to be displayed by the report window in the setup dialog box.



Save report tool:

Allows user to save the report as Excel file format (.xls) or Text file format (.txt). Click on the icon and a file-saving window will pop up. Input the file name, select the file format then click “Save” to save the file.

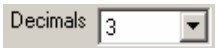
Print report tool:

Allows user to print the report. Click on the icon and a print report window will pop up. Select and input the printing format and the parameter. Then proceed to print the report by clicking “Print”.

Display lane:

Choose a particular lane or few lanes of interest to be displayed by typing the lane number(s) in the display lane dialog box.

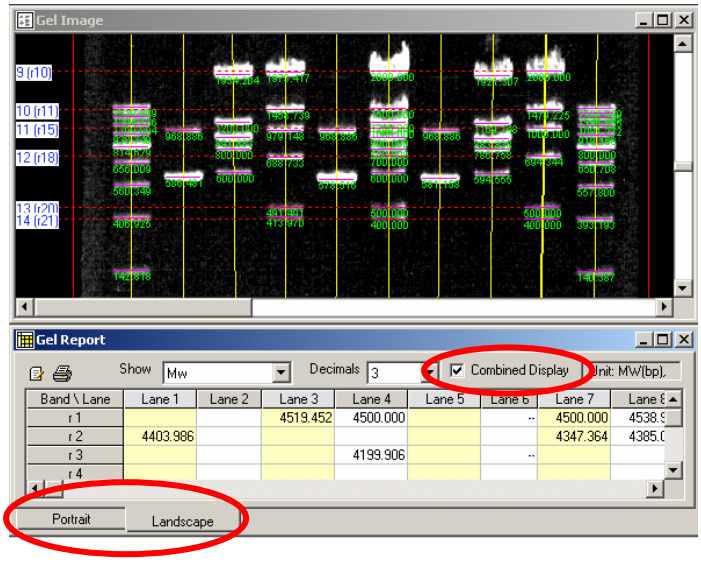
Note: For typing multiple lane numbers, separate each lane number by a comma.



Decimals:

Choose the number of decimals for the results to be displayed from the “Decimals” pop-up menu. The default number of decimals is 3 and the maximum number that can be chosen is 5.

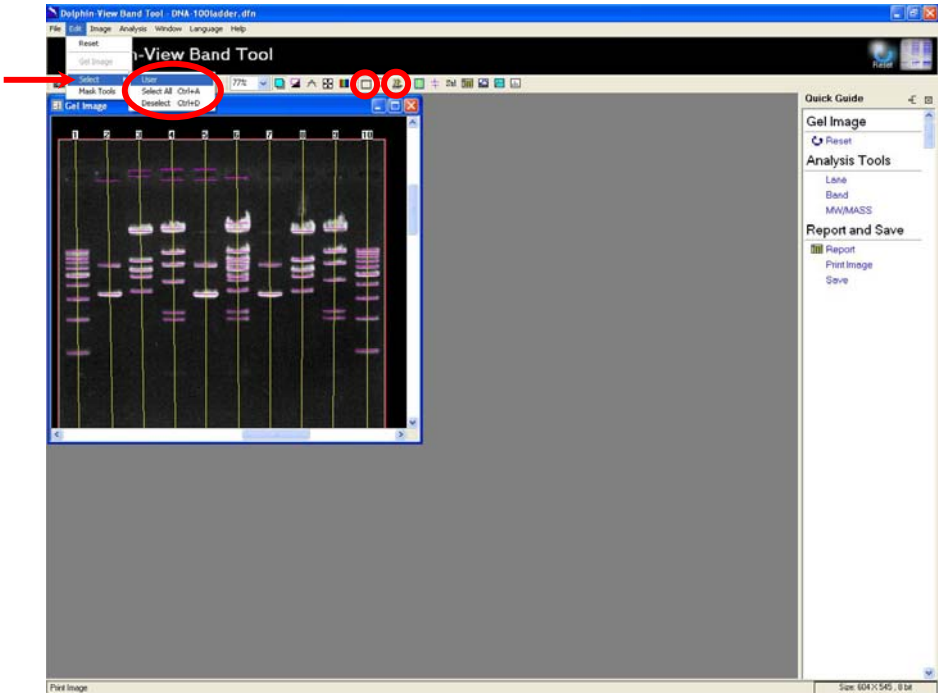
Report Window Display:



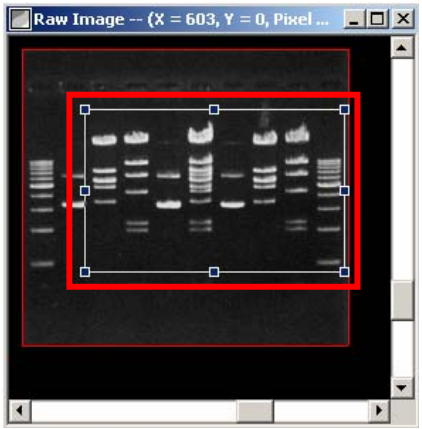
User may choose the results window to be displayed in “Portrait” or “Landscape” format. The default setup is portrait format. In portrait format, all the resulting analysis will be displayed and arranged in six different columns. For the landscape format, choose the result parameter to be displayed from the pop-up menu. To show the Mw or Mass value on the gel image, check “Combined Display” on right upper side of landscape format window.

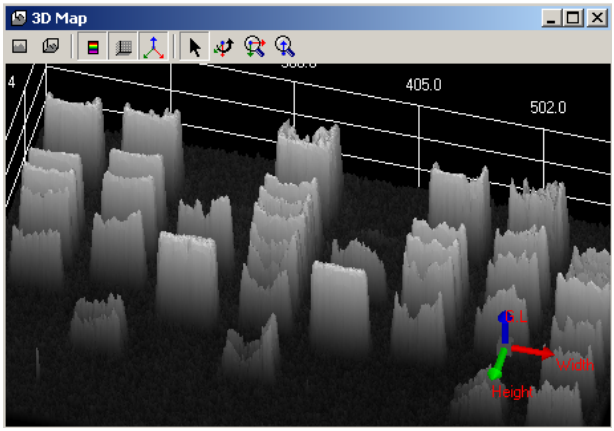
D-3-5. 3D Map

To enable the “3D MAP” icon click “Select” icon, or select and click “Select” from edit menu to choose the selection option “User” or “Select All Ctrl+A” or “Deselect Ctrl+D”.



Click “Select” tool on tool bar and move cursor on image to select desired image area. Click “3D Map” tool and select the image background color. The 3D Map window will pop up.





1. 3D Map tools

View front tool

Click this tool to convert the image from 3D Map to 2D Map.

View custom tool

Click this tool to return back the image to default 3D Map image.

Use color table tool

Select this tool to display the 3D Map in ranging colors or in single color.

Show frame tool

Select this tool to display coordinate frame on the image.

Show small coordinate tool

Select this tool to display 3D coordination axis of the image at the right bottom of the window.

Move tool

Select this tool in order to move the 3D Map image on the window using cursor.

Rotate tool

Select this tool to rotate the 3D Map image using left mouse button. In general while using any other tools to rotate the 3D image right mouse button can be used.

Map zoom tool

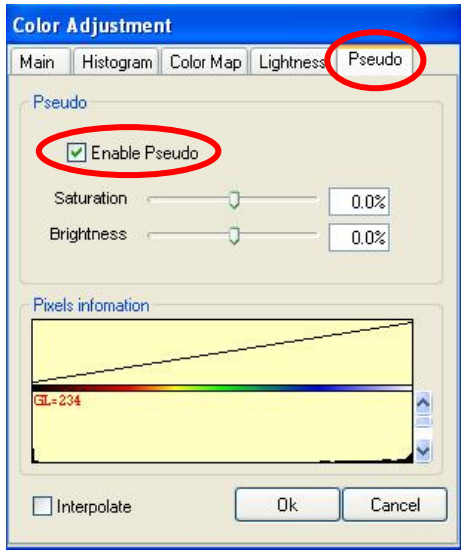
Select this tool to enlarge or shrink the 3D Map image. Click holding the left mouse and moving cursor to the right will enlarge the 3D Map image and moving the cursor to the left will shrink the 3D Map image.

Level zoom tool

Select this tool to enlarge or shrink the single dimension of the OD axis. Clicking and holding the left mouse button and moving the cursor to the right will enlarge the OD axis of the 3D Map image and moving the cursor to the left will shrink the OD axis of the 3D Map image.

2. Viewing color 3D Map image

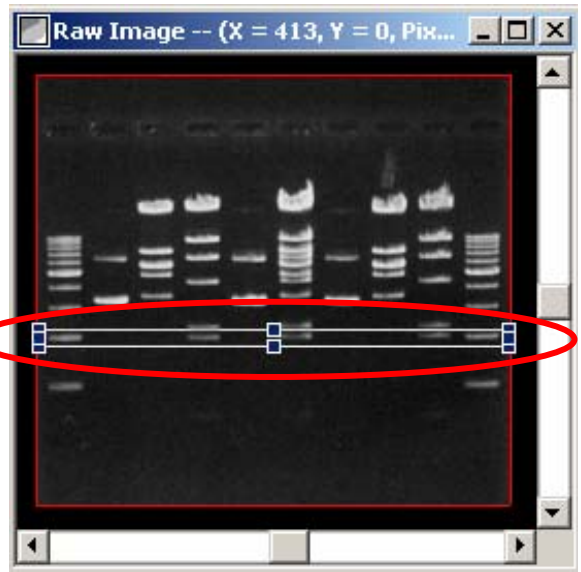
a.) Click "Color Adjustment" tool on tool bar. Select "Pseudo" page and check "Enable Pseudo".



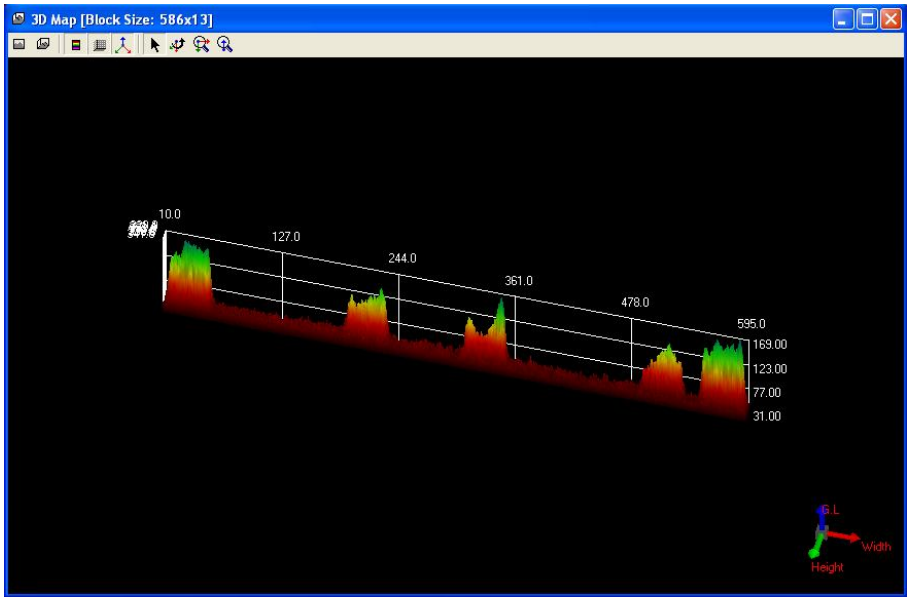
b.) Click "Use Color Table" to display 3D Map in color mode.

3. 3D Map of single band profile

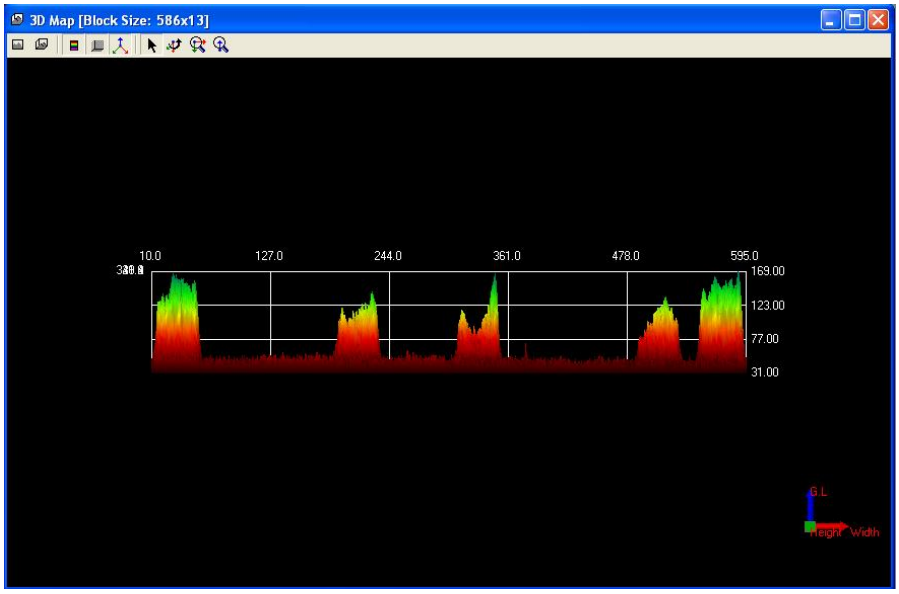
a.) Click "Select" tool on tool bar and move cursor on image to select desired single band area.



b.) Click “3D Map” tool and the 3D Map window pops up. Click “Use Color Table” to display 3D Map in color mode.

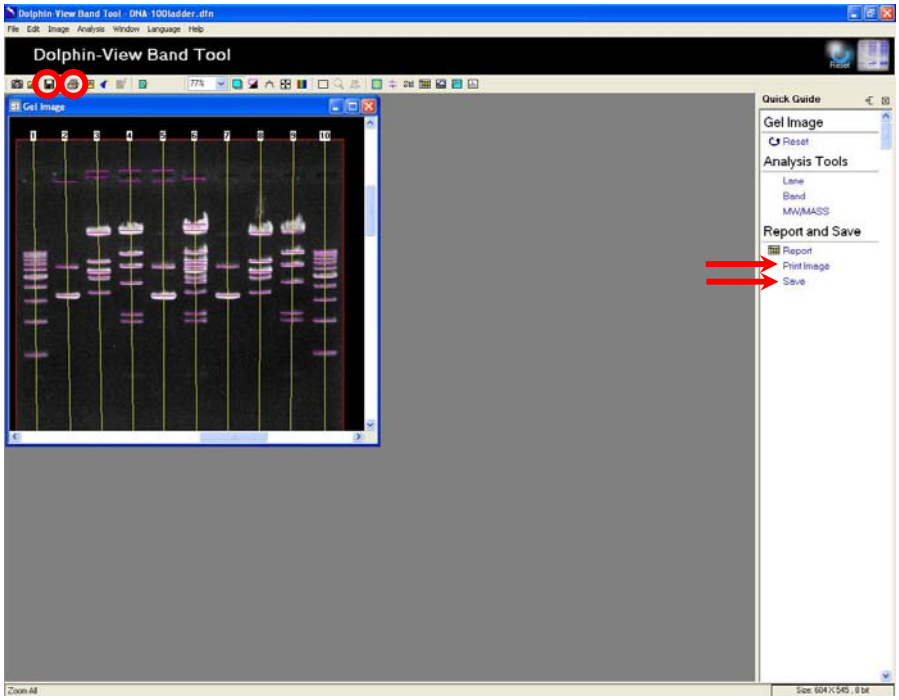


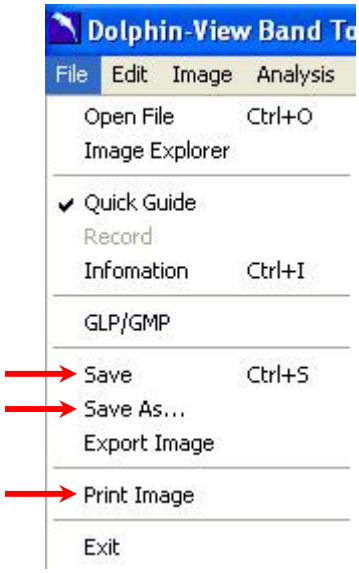
c.) To view the single band profile in 2D select 2D mode by clicking “View front”.



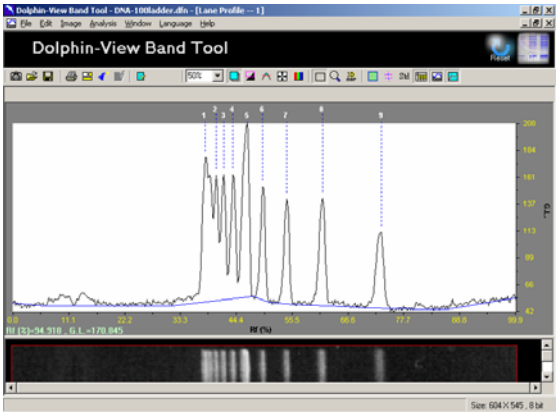
D-3-6. Print and Save

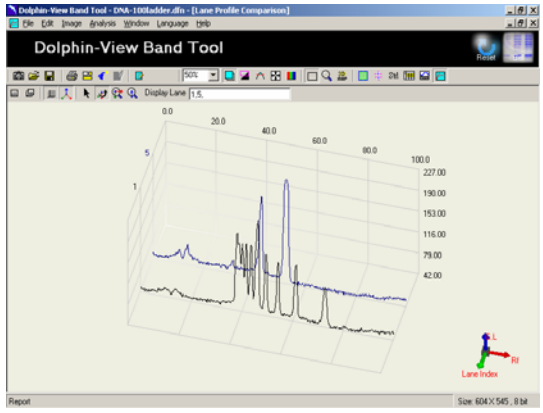
Click “Print Image” from quick guide or “Print Image” icon, or select and click “Print Image” from file menu to print the image. Click “Save” from quick guide or “Save” icon, or select and click “Save” or “Save As…” from file menu to save the image.

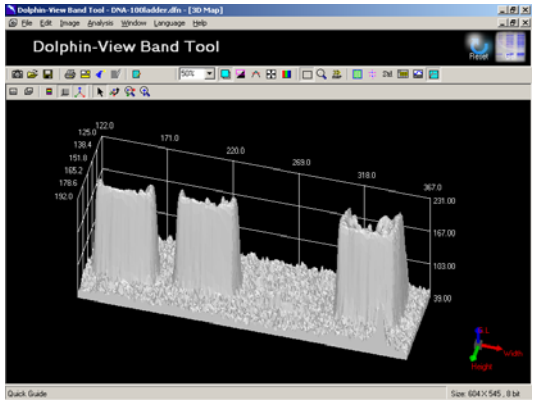




User may choose to store the file in Dolphin format or save the report as excel file format or text file format by clicking on “Save Report” icon on the report window and a file-saving window will pop up. Input the file name, select the file format and save the file by clicking “Save”. Printing or saving the following images: Lane Profile, Lane Profile Comparison or 3D Map can be done by closing the quick guide and maximizing the images, then press “Print







Screen” on keyboard and paste the image into Microsoft Paint Software. (Start→Programs→ Accessories→Paint) Print or save the image with Paint Software.

E. Care and Maintenance

- **Except for the** touch screen LCD and connection ports, Dolphin-View darkroom can be cleaned with pre-moistened soft tissue soaked with clean water. Organic solvents or any strong detergents may damage the instrument and should not be used.

- Touch screen LCD must not be wiped with hard materials to avoid any damages to the touch sensor. Use only clean wipe papers or lens cleaning cloth to clean LCD touch surface.

- Touch screen LCD, CCD camera, lens and filters should be protected from any possible moisture, organic solvents and detergents. Use special cleaning solutions and clean wipe papers.

- Sample surface of UV transilluminator should be cleaned with pre-moistened soft tissues after every use to avoid any possible contaminations and damages to the instrument.

F. Order Information

Dolphin-View/USB Image system

Item #	Description
1147001USB	Dolphin-View Image System/USB, 120V/50-60Hz, includes CCD camera, lens, darkroom with system operation, MD-25 UV transilluminator (25x25cm), Dolphin-View band tool analysis software (Dolphin-1D Limited version with only basic analysis feature)
1147002USB	Dolphin-View Image System/USB, 230V/50-60Hz, includes CCD camera, lens, darkroom with system operation, MD-25 UV transilluminator (25x25cm), Dolphin-View band tool analysis software (Dolphin-1D Limited version with only basic analysis feature)
1147003USB	Dolphin-View Image System/USB, 100V/50-60Hz, includes CCD camera, lens, darkroom with system operation, MD-25 UV transilluminator (25x25cm), Dolphin-View band tool analysis software (Dolphin-1D Limited version with only basic analysis feature)

Optional Accessories

Item #	Description
1146001	UV/ White light converter plate
1146002	Protection cover for gel excision
1147004*	Mitsubishi P-93W Thermal Printer for Dolphin-View Image System
1147005*	Sony UP-895MD Thermal Printer for Dolphin-View Image System
1147006*	MITSUBISHI K-65HM BLUE DYE IMAGE PRINT PACK, 215 print/ roll, 4 rolls/ box
1147007*	SONY UPP-110HG HIGH GLOSSY THERMAL PAPER, 240 print/ roll, 5 rolls/ box

Optional Software Dolphin-1D

Item #	Description
1144001	Dolphin-1D software

01060 **Wealtec Corp.**

1885 Meadowvale Way Sparks, NV 89431 Tel: +1-775-351-2066 Fax:+1-775-351-2077

http://www.wealtec.com E-mail: support@wealtec.com