

ECOVIEW 9 PLUS

Straight Arm

A straight arm DR equipped with one fixed type 17 X 17 FPD provides high quality images in order to meet general and specialized diagnostic needs. Unique designed straight arm enables all types of diagnostic procedures from chest to table examination in small practices or primary / urgent care institutions .

- **COLLAPSIBLE STAND** for compact installation space.
- **LOCK SENSOR** operates automatically by hand grip
- **SID & ANGLE** display on LCD touch screen
- **MOTORIZED** up/down & SID control



Adjustable detector angle



Easy Lock-free mechanics

Chest Exam

Chest exam is mainly used for chiropractic and thoracic practices. Users maintain correct chest examination with reliable performance. With its compact design & easy installation, it is an excellent choice for a mobile solution

- **AUTO FOCUSING** by motor control
- **EASY** installation and operation in a clinic or a vehicle
- **USER** friendly LCD console for fast workflow



Category / Range		400mA	500mA	630mA	800mA	1000mA	
Generator	Power		32kW	40kW	50kW	65kW	80kW
	Output Frequency		40kHz			300kHz	
	Max.	kV	125	125	150	150	150
		mA	400	500	630	800	1000
	Max. rating (at 100 mSec)		400mA @ 80kV	500mA @ 80kV	630mA @ 75kV	800mA @ 80kV	1000mA @ 80kV
	mAs range		0.1 ~ 400mAs	0.1 ~ 500mAs	0.1 ~ 630mAs	0.1 ~ 800mAs	0.1 ~ 1000mAs
	Exposure time		0.001 ~ 6 seconds (81 steps)				
	APR		288			1290	
	AEC		Available (optional)				
Line voltage (phase)		220VAC 50/60Hz (single)		380VAC 50/60Hz (three)			
Tube	Anode heating unit		140KHU		300KHU		
	Focal spot		1.0/2.0mm		0.6/1.2mm		
	Target angle		16°		12°		

Specifications are subject to change.

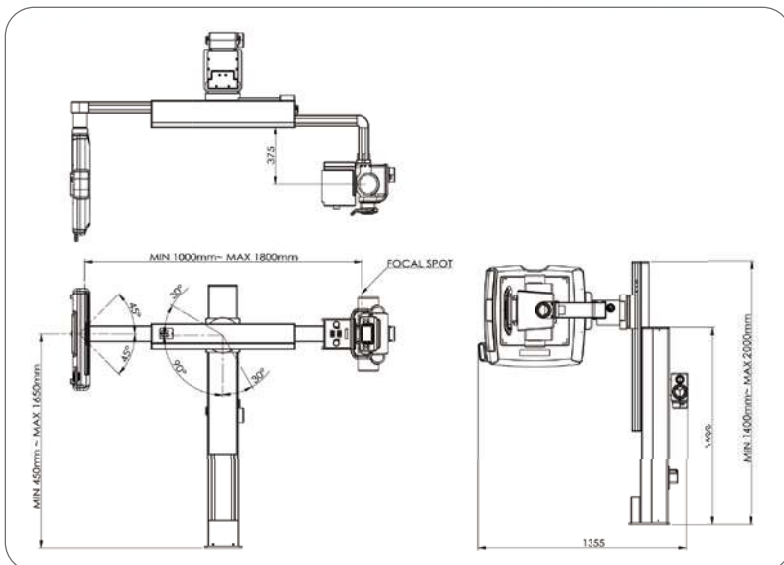
Flat Panel Detector with acquisition software

X-ray Conversion Layer : Amorphous Silicon (a-Si) Photodiode

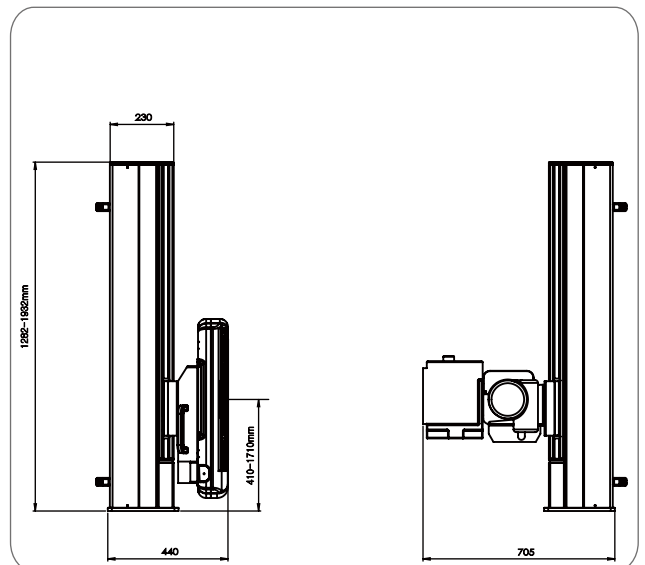


Scintillator	: Gadox or Csi
Active Array	: 3072 x 3072 pixels
Active Area	: 430.08mm x 430.08mm
Pixel pitch	: 0.14mm (140μm)
Grayscale	: 16 bits
Image Acquisition time	: 2 seconds
Dimension (H x W x D)	: 460 x 460 x 15.5mm
Weight	: 4.5 kg

Straight type

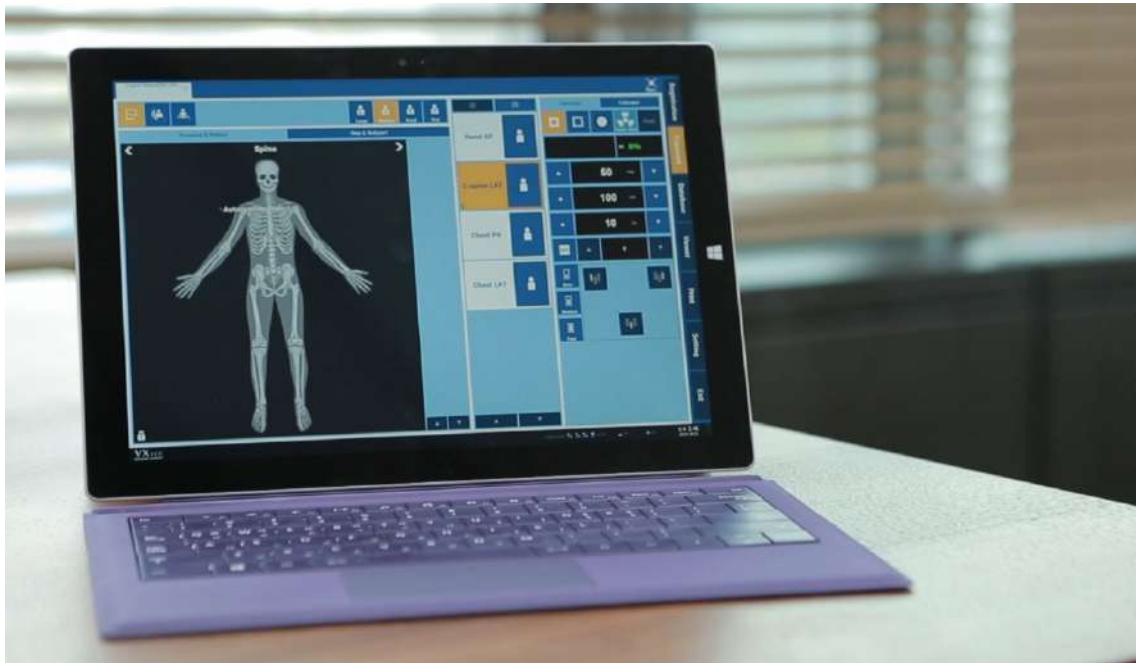


Chest type





ECOVIEW Operation Manual



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The specification is subject to change.

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1. Information

This section gives basic information of this manual and the product.

Disclaimer
Document Guide
Document Convention
Version Information
Revision History

1.1 Disclaimer

If the user is not fully acquainted with this manual, the system can be malfunctioned or unsuspected problem can be happened due to carelessness. To prevent any medical accidents, the user should fully understand the instructions of this manual before operating the program.

When the user operates this software, take the following precautions. Otherwise, problems may occur or the product may not function correctly.

- 1 Roentgenography, image processing, reading of image, and data storage must be performed in accordance with the law of each country where the program is being used. Also, the user is responsible for protecting the privacy of image data.
- 2 In no event will ECORAY be liable for direct or indirect consequential damage arising out of the use of this program. ECORAY will not be liable for loss of image data due to any reason.
- 3 Before using this software, be sure to read this manual thoroughly. Also, read the manuals of relevant instruments in the system. Keep this manual where it is easily accessible.
- 4 Other systems and product names in this manual are the trademarks from their manufacturer.



- The user is responsible for ensuring whether the detector calibration is performed right after the software installation. Do not try to use the software if the detector calibration has not been performed.

1.2 Document Guide

This section describes about the information of this document.

Contents

This document is the operation manual for **Ecoview** users. You can install **Ecoview** and acquire / manage images from the detector. It is also available to improve the image quality by using various image management and adjustment tools.

Target

This manual is intended for the engineers and end users who install and use the **VIVIX-S** detectors and **Ecoview**.

Contact Department

For any comments or inquiries regarding this document, contact the customer support team in ECORAY.

Item	Contents
Department	Customer Support Team at ECORAY
E-mail	Customer_Care@ecoray.kr

Trademarks

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1.3 Document Convention

This section describes the symbols and notations in this manual.

1.3.1 Symbols

Caution and Warning



- This symbol is used for indicating a potentially hazardous situation while operating this product. Users should be well acquainted with this symbol and the related contents.

Information



- This symbol is used for indicating the product-related references and complementary information.

1.3.2 Notations

Bold Types

Words in bold indicate options seen directly within the GUI (graphical user interface) of the **Ecoview** program.

1.4 Version Information

Software and Firmware compatible version (Recommended)

Software				Package (Firmware)										
Ecoview	VIVIX Setup	VX Setup	VDD	FXRD (Detector)						VXTD		FXRS (SCU)		
				1717S	1417S	1417W	1012N	1717N	1417N	1717V	2532E	02A	03A	04A
1.0.0.87	1.0.10	2.0.0.87	1.4	01.06 02.03	01.04 02.01	01.25 02.07	3.41	1.41	1.0.0.1 3	1.00	1.0.0.4	3.39	01.22	3.39



- The versions above are meant to be used for document revision only. They do not guarantee compatibility across all referenced models.

1.5 Revision History

Ver.	Date	Revision History
V87	2018-09-03	Changed) 5.1.2 Searching Scheduled Changed) 5.3.2 Searching Reserved Information Changed) 7.32 Image Guide Lines

2. Instruction

This section provides basic concept and recommended specifications of Ecoview.

Overview
Recommended Specifications

2.1 Overview

Ecoview is the image viewer program for **VIVIX-S** only that acquiring, adjusting and managing images generated from the **VIVIX-S** detector. Besides **Ecoview Viewer**, **Ecoview** is organized with several specialized modules. This system provides high quality medical images to users through various advanced functions and quick image processing between the modules.

2.1.1 Main Features

- Acquire and search images exposed from the VIVIX-S detector.
- Implement high-quality image by applying the image processing algorithm developed by ECORAY
- Skins for various GUI (Graphic User Interface) suitable for both ordinary and touch screens.
- Store and manage images in the database.
- Adjust images using various processing tools.
- Export images using various media.
- Check the detector condition and change the settings.
- Chase and search the system status.
- Ecoview conforms to the standard of DICOM 3.0.



- HS8 and PureImpact™ are the image processing algorithm developed by ECORAY.

2.2 Recommended Specifications

This section provides information about the recommended specifications for installing and using **Ecoview**.



- If the specification cannot meet the recommended one, it may affect the functions and processing speed of **Ecoview**.

2.2.1 Workstation

Components	Recommended Spec.
OS	Microsoft Windows 7 Professional 64bit (Service Pack 1)
	Microsoft Windows 7 Ultimate 64bit (Service Pack 1)
	Microsoft Windows 8 or 8.1 Professional 64bit
	Microsoft Windows 8 or 8.1 Ultimate 64bit
	Microsoft Windows 10 Professional 64bit
	Microsoft Windows 10 Ultimate 64bit
LAN Card	1000BASE-T Gigabit Ethernet card Intel® PRO 1000 Series (Gigabit LAN Card for network interface) Min. requirements: 1Gbps, Jumbo Frames: 9K Receive Descriptors: 2K (higher than 1024)
CPU	Intel Core i5 2600 or higher (or compatible CPU)
Memory	4GB or higher
HDD or SSD	1TB or higher
Monitor	1280 X 768 or higher
CD-ROM	CD or DVD R/W

3. Browse Around

This section gives instruction on how to start and close Ecoview and its basic components.

- Preparation
- Starting Up
- Basic Composition
- Registration Mode
- Exposure Mode
- Database Mode
- Viewer Mode
- Print Mode
- Setting Mode
- Closing

3.1 Preparation

Before running **Ecoview**, you should be ready to use the system by prechecking its operating condition and environments.



- Refer to **VIVIX-S Detector Operation Manual** for preparation before installing **Ecoview** and for checking status after installing **Ecoview**.

Checking Connection Status

- Check the physical connection status between **VIVIX-S** detector, **SCU** and **Workstation** (Computer) before starting **Ecoview**.

Checking the Detector

- You cannot acquire an image if **Calibration Data** is not loaded to the inside of detector. Process **Calibration** from **VXSetup** first.
- Check whether the power is supplied to the detector or not. Especially, in case of using the wireless detector, make sure to check if the battery is inserted to the detector.



- Without performing calibration, it is not possible to start **Ecoview** or get images. Refer to **VIVIX-S Setup Operation Manual** for the detailed information about calibration and the device connection.

Checking Exposure Preparation

- Check if the X-ray generating device (**Generator**) is ready to use. You should also check the shooting environment to make the exposure.

Checking Network and Wireless Status

- Check if the network settings are composed correctly to make network communication.
- You should precheck the wireless status if the system uses wireless network.

Checking Preparation for DICOM Integration

- If DICOM and PACS system (**DICOM Worklist**, **DICOM Storage**, etc.) is integrated, precheck the preparation status of DICOM server.

Checking License

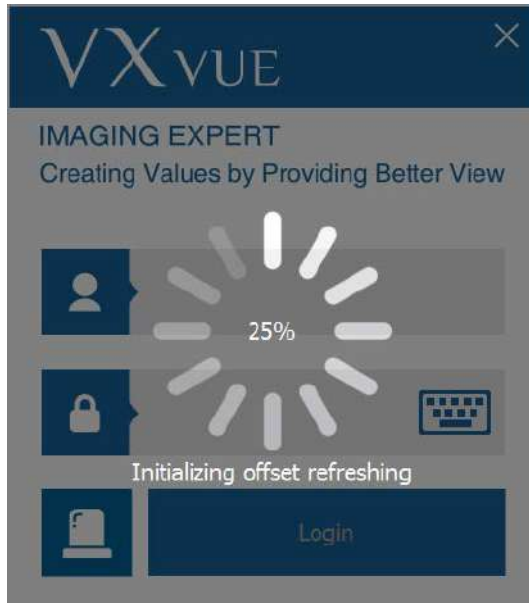
- You need to register the license when you first execute **Ecoview** and **XIPL**. Make sure to be fully aware of the related data in advance to issue the online license.

Activating XIPL Server

- When you complete installing **Ecoview** for the first time, it is necessary to activate the **XIPL** server after connecting a detector. You cannot process the images without activating it.

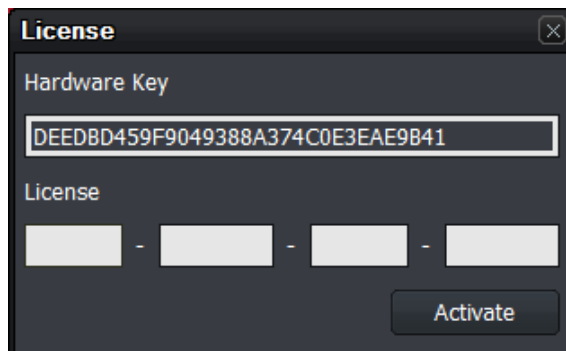
3.2 Starting Up

3.2.1 Running Ecoview



- 1 Execute **Ecoview**.
 - 2 Wait until **Ecoview** loads completely.
- While running **Ecoview**, the following points are processed.
 - Connecting to database.
 - Checking license registration status
 - Checking detector connection status
 - Checking detector calibration status
 - Checking resolution.
 - Initializing UI (User Interface)

3.2.2 Registering License




- 1 Get a license by using the **Hardware Key** indicated on the License window.
- This window is not displayed again after the license is registered successfully.



- A new license window can be displayed if you change specifications of the PC where **Ecoview** is installed.
- Contact the person in charge of ECORAY for the way of license issue and input.

3.2.3 Login



- 1 Log on to **Ecoview** by clicking the Login button after entering **ID** and **Password**.
 - The ID logging on lastly remains.
- 2 Click on  button to input **ID** and **Password** by using a virtual keyboard.



- For setting the user account, go to **Setting → System → Account**.
- Refer to <4.4 Touch-Oriented> for detailed information about using a virtual keyboard.

3.2.4 Log on to ER (Emergency Room) Mode



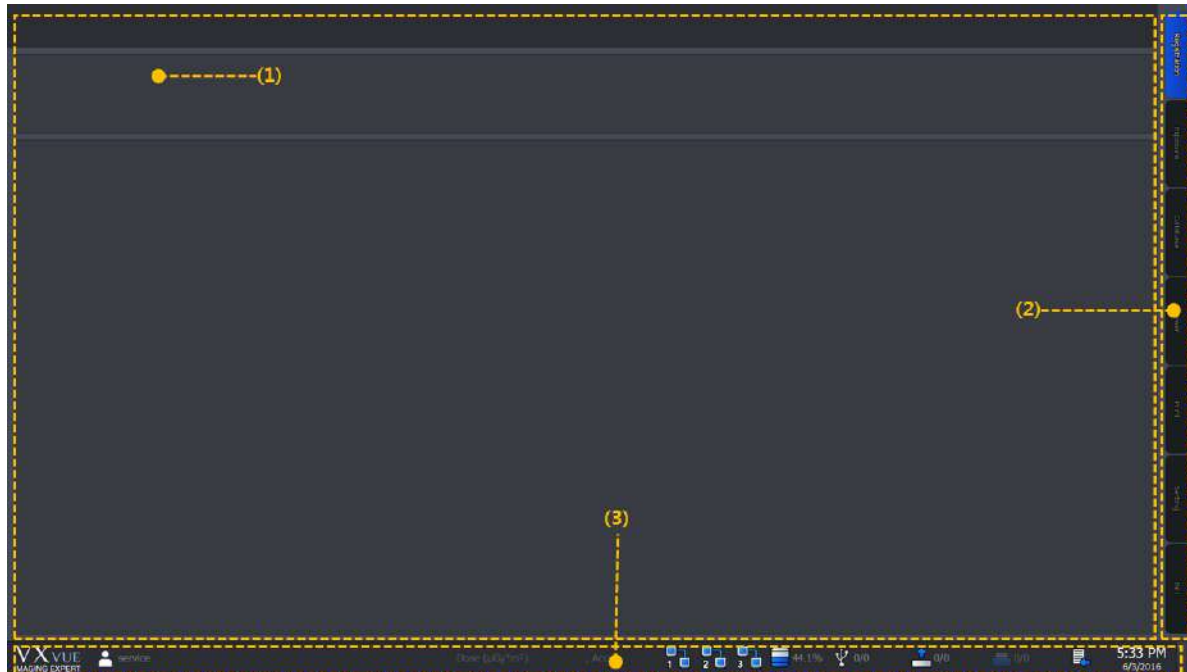
- 1 Click on the **ER** button to log on to the **ER** mode.
 - This mode can be used for the emergency circumstances such as emergency exposure without entering **ID** and **Password**.



- Refer to <10.2 Emergency> for more information about the **ER** mode.

3.3 Basic Composition

Ecoview is organized with three basic areas as follows.



1 Task area

All tasks can be processed in the task area. This area has different compositions by each mode, and can be switched when you select the desired mode tab.

2 Mode tab area

You can select the mode tab and process the desired work depending on your purpose. The mode tabs are organized with seven modes.

- **Registration, Exposure, Database, Viewer, Print, Setting and Exit**

3 Status bar area

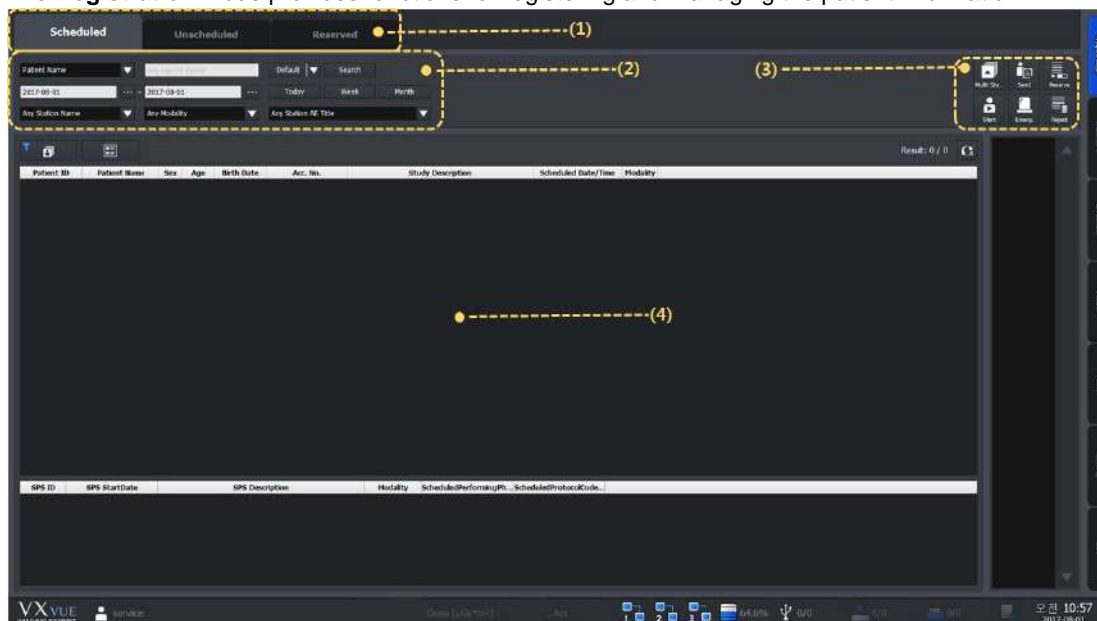
The status bar indicates major status information. You can keep checking the status if the mode is changed.



- Refer to <10.1 Status Bar> for more information.

3.4 Registration Mode

The **Registration** mode provides functions for registering and managing the patient information.



1 Panel area

The **Registration** mode is divided into three panels (**Scheduled**, **Unscheduled** and **Reserved**) according to the registration way of patient information. You can choose the desired panel and register patient information.

2 Search tool area

You can use the search tools for searching the patient information.

- Only the **Scheduled** and **Reserved** panels provide the search tools.

3 Tool button area

When you complete searching the patient information, you can process the next step with the tool buttons.

- Only the **Scheduled** and **Reserved** panels provide the tool buttons.

4 Searched list area

You can check the searched result on the list after searching patient information.

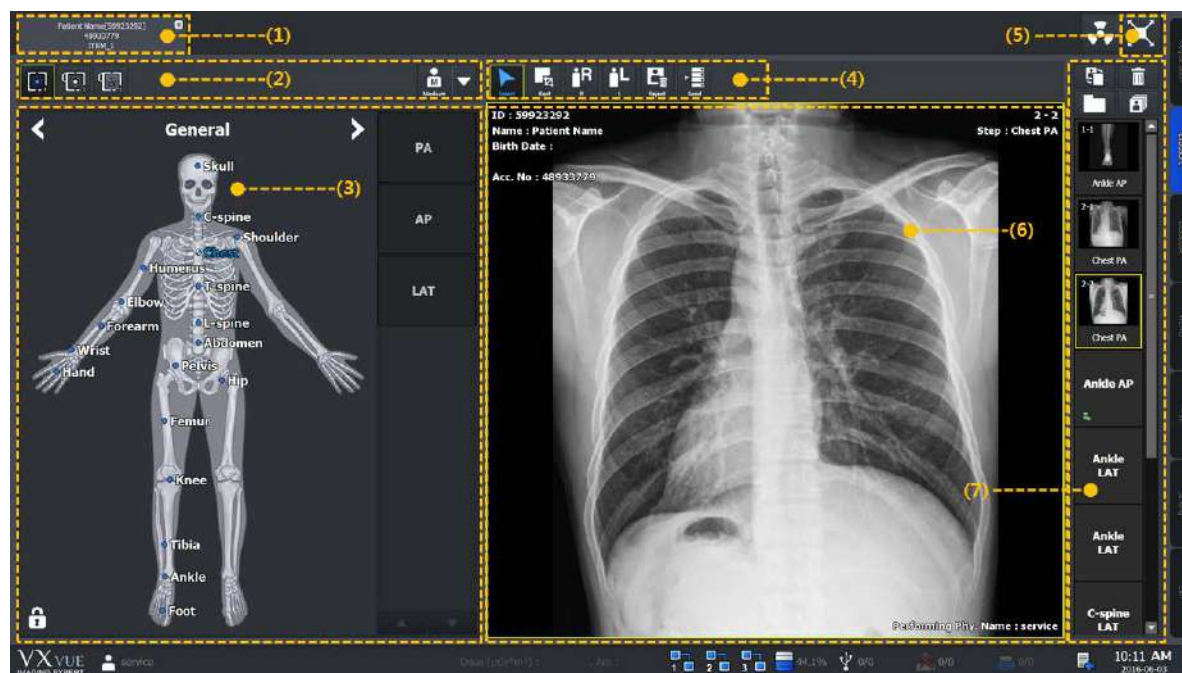
- Only the **Scheduled** and **Reserved** panels provide the searched list area.

3.5 Exposure Mode

You can make an exposure from the **Exposure** mode. The **Exposure** mode supports a general exposure and macro exposure modes.


- General exposure mode – Set the preparation steps to make an exposure.
- Macro exposure mode – Make an exposure and adjust the image by magnifying the image view area.

3.5.1 General Exposure Mode



1 Study tab area

You can select a registered study from the study tab area to make an exposure.

- If you click on  button while acquiring an image, the study tab is closed and saved automatically.

2 Detector and patient size selection area

You can prepare an exposure by selecting a detector and a patient size.

- Select a detector icon to be used for the exposure.
- Select a patient size icon.

3 Exposure step selection area

You can prepare an exposure by selecting body categories and steps.

- Select a category.
- Select shortcut icons of steps registered in the body image.
- Select exposure projection buttons on the left/right of the human body image after selecting a step.

4 User-adjustable tools area (Quick Access Tool)

You can register the image adjusting tool buttons to process images with them.

- The tools registered as the user-defined tools can be registered from the **Setting** mode.

5 Move to the macro exposure mode



Click on the **Maximum** button to change the screen to the maximum exposure mode.

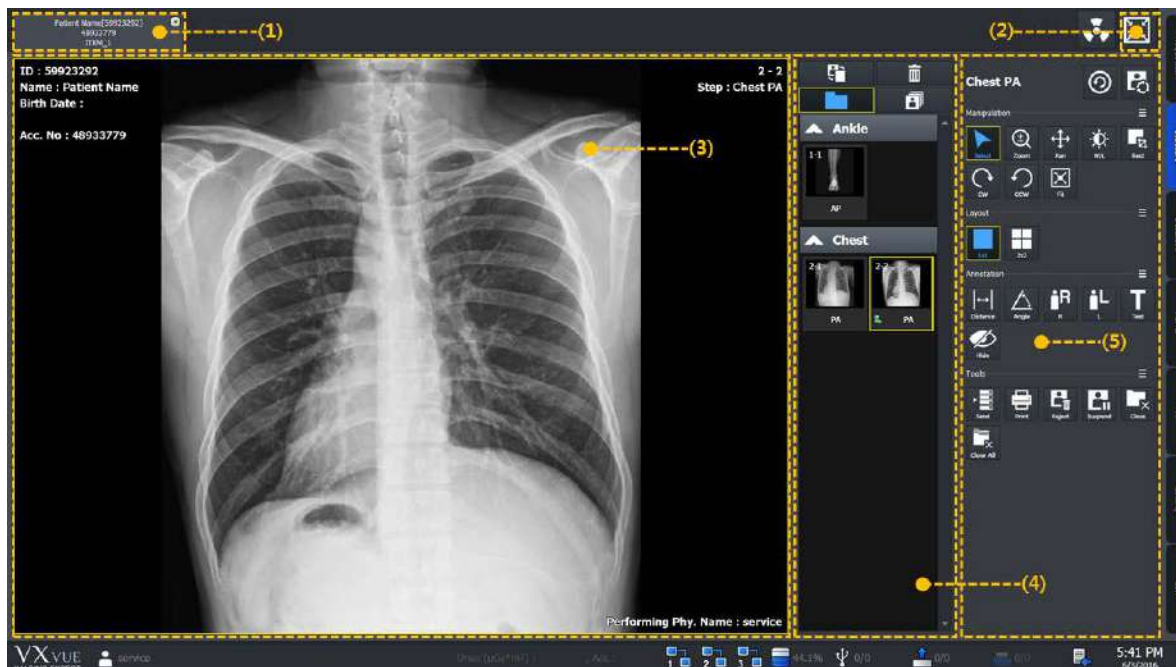
6 Image view area

Check the acquired images from the image view area.

7 Thumbnail area


Check the thumbnail image acquired from the thumbnail area. If you click the thumbnail image, it will display on the image view area.

3.5.2 Macro Exposure Mode



1 Study tab area

Click the desired study tab to move to the selected study.

- Click on  button to close the study tab being exposed.

2 Move to the general exposure mode



Click on the **Minimum** button to move the screen to the general exposure mode.

3 Image view area

Check the acquired image from the image view area.

4 Thumbnail area

Check the thumbnail image list acquired from the thumbnail area. When you select the thumbnail image, it is displayed on the image view area.

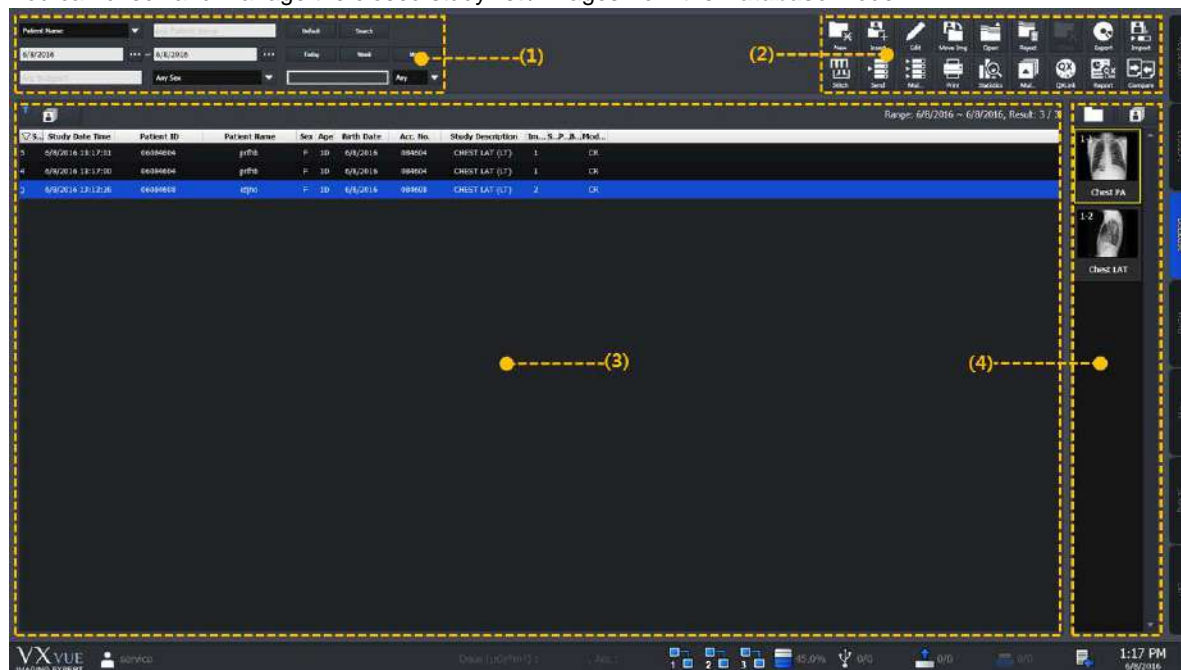
5 Image adjusting tools area

You can use the various image adjustment tools.

Name	Description
Step	Used for indicating and changing steps of the image.
Manipulation	Tools for manipulating the image.
Layout	Tools for changing layout of the image display.
Annotation	Tools for inserting annotations on the image.
Tools	Tools for processing the image.

3.6 Database Mode

You can check and manage the closed study list / images from the **Database** mode.



1 Search tools area

Search study lists by using the search tools.

2 Management tools area

Manage the study and image information by using various buttons in the manage tools area.

3 Study list area

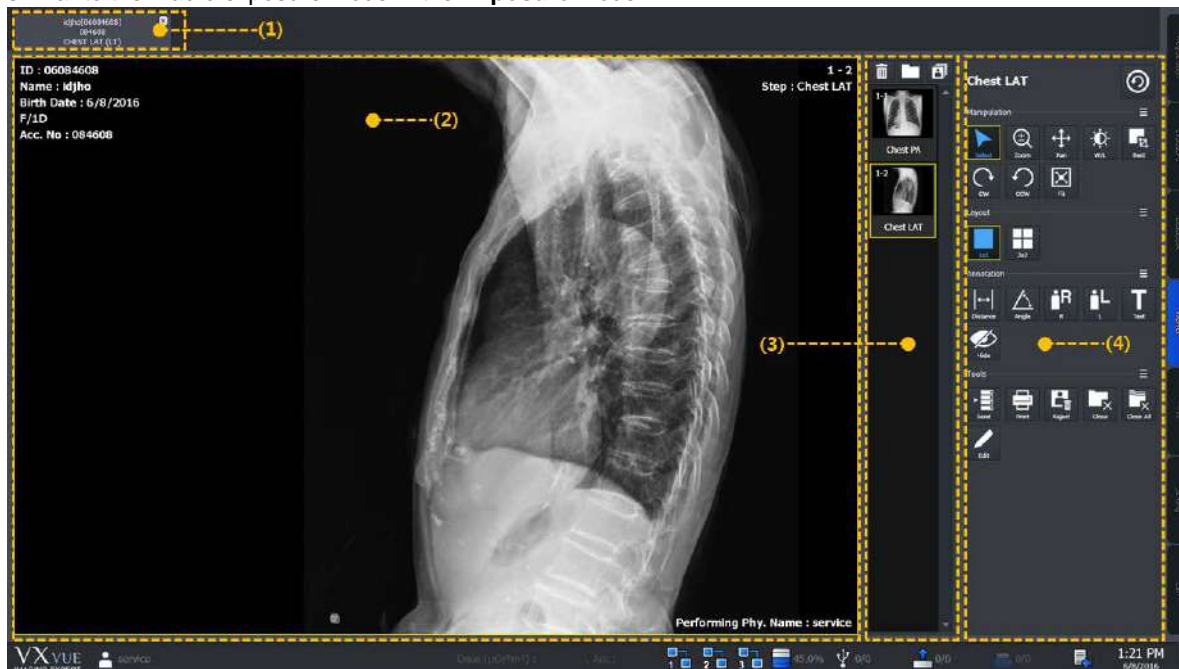
Check the searched study list.

4 Thumbnail area

Check the thumbnail image of the selected study from the thumbnail list.


3.7 Viewer Mode

You can check and adjust the selected images from the **Viewer** mode. The organization of **Viewer** mode is very similar to the macro exposure mode in the **Exposure** mode.



1 Study tab area

Click the desired study tab to move to the selected study.

- Click on  button to close the study tab.

2 Image view area

Check the selected image.

3 Thumbnail area

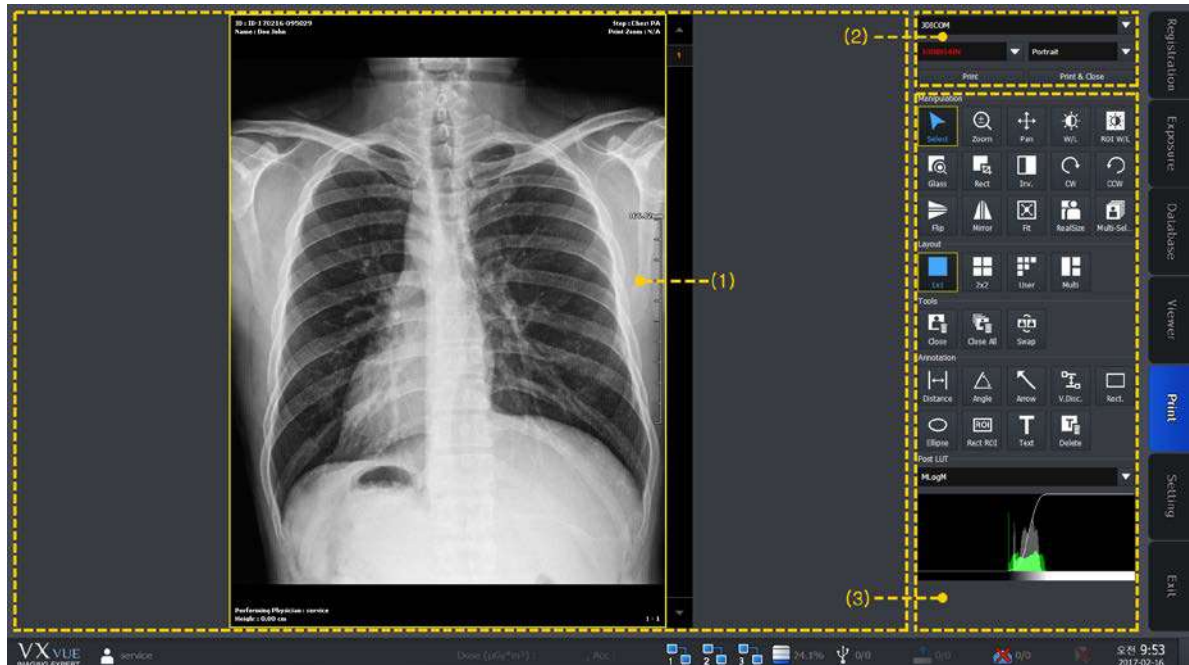
Check thumbnail images of the selected study.

4 Image adjustment tools area

Use the various image adjustment tools applying to the image.

3.8 Print Mode

You can set the print and adjust an image to be printed from the **Print** mode.



1 Print view area

Check and adjust the image to be printed.

2 Printer setting area

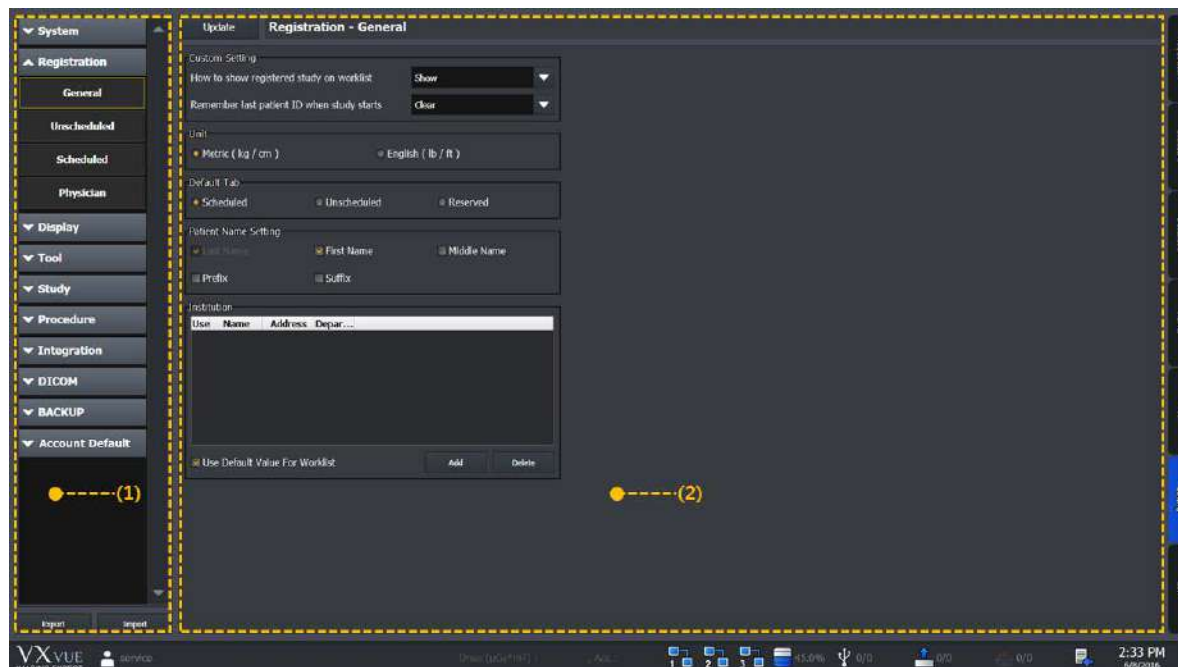
Set the printer and film information for printing the selected image.

3 Print image adjustment tools area

Use the print image processing tools applying to the selected images.

3.9 Setting Mode

You can configure various values from the **Setting** mode. This mode provides 10 setting groups.



1 Panel area

Panel	Description
System	Sets the system information.
Registration	Sets the information related to the patient registration.
Display	Sets the information related to the Viewer mode.
Tool	Sets the information of tools.
Study	Sets items for managing studies
Procedure	Sets the exposure procedure information.
Integration	Sets items for integrating a detector with equipment.
DICOM	Sets the DICOM information.
Backup/Reject	Checks and restores the backup and deleted information of images.
Account Default	Sets an account-related default to use when adding another account

2 Setting area

When you select a desired panel, the screen is switched to the related setting window.



- Refer to Ecoview Service Manual for more information about the setting areas.

3.10 Closing

- 1 Click on the **EXIT** mode tab at the right bottom.
- 2 Click on **Yes** when a pop-up window is displayed for ending or not the program.



- Select **Logoff** button to open the login window to log into **Ecoview** with another account.
- Select **Shut down** button to close the system.

4. User eXperience

This chapter provides information about the improved UX (User eXperience) of Ecoview.

Introduction
Skin (Theme)
Layout of Sapphire Blue Skin
Touch-Oriented
Auto Rotation of UI

4.1 Introduction

Ecoview provides various **UX** (User eXperience) and **GUI** (Graphic User Interface) for user convenience. With these functions, the user can build an optimal environment suitable for one's purpose by using a touch screen, virtual keyboard and tablet PC away from the conventional keyboard, mouse, monitor and the general PC environment.

UX	Description
Skin (Theme)	Ecoview supports the skin (theme) function. You can choose a skin suitable for the use environment to use the brand new Ecoview .
Layout	Ecoview has various layouts. User can use Ecoview with the layout suitable for the use environment.
Touch-orientation	Ecoview supports the touch function. If the monitor in use supports a touch screen function, you can select a suitable skin (theme) from Ecoview to use.
Virtual Keyboard	Ecoview supports virtual keyboard. You can input data by touching the virtual keyboard displayed on the screen.
Auto Rotation of UI	Ecoview has a layout for a vertical monitor under the HD resolution (1920x1080). The layout changes when the monitor is rotated.



- The skin, touch screen and virtual keyboard can be used by installing **Ecoview** to a **Windows** based tablet PC which supports these functions. Be sure to ask the person in charge of ECORAY for the models and specifications of tablet PC suitable for **Ecoview**.

4.2 Skin (Theme)

Ecoview provides two types of skins (theme) as follows.

Skin	Description
Onyx Classic	Default skin
Sapphire Blue	Suitable for touch operation.
Sapphire Blue-QHD	Provides bigger button and font size than those of Sapphire Blue to fit for a tablet PC with small monitor.

- **Sapphair Blue** is a designed skin for touch operation. The size of GUI such as icons is changed for easy touch as well as designed a user-friendly way.
- **Sapphire Blue** skin is a very simple flat design with a blue background and white GUI. As the icons and thumbnails are turned to orange color by selecting those items, it is easy to understand their current status. In addition, the size of selected icons gets bigger for making touch operation easy.



- **Ecoview Vehicle** does not support theme files for QHD.

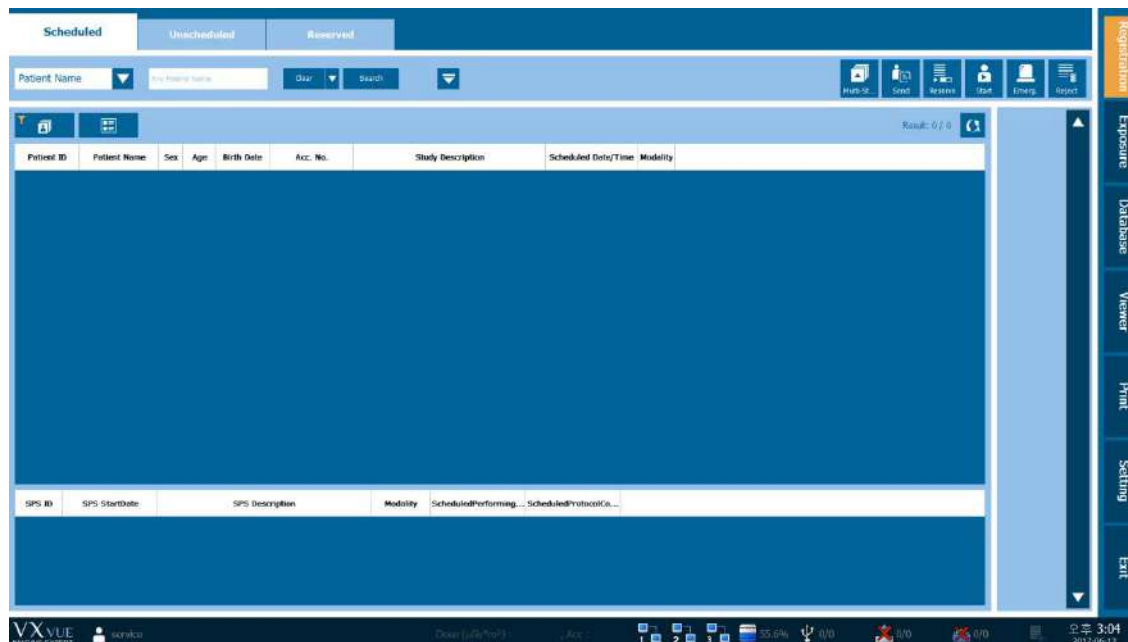
Icon	Thumbnail





- All functions of **Sapphair Blue** skin are same as the **Onyx Classic** skin, except the design.
- You can change the skin from **Setting** → **System** → **System Info.** menu.

4.3 Layout of Sapphire Blue Skin

4.3.1 Registration mode



- Sapphire Blue skin has the hidden function of search conditions.
- Click on   buttons to expand or reduce the screen of search conditions.

Screen Image

Before expanding the search screen



After expanding the search screen



4.3.2 Exposure mode

The displaying layout of **Exposure** mode is changed automatically depending on the screen resolution.

Default Layout

- Both the step and view areas are displayed.



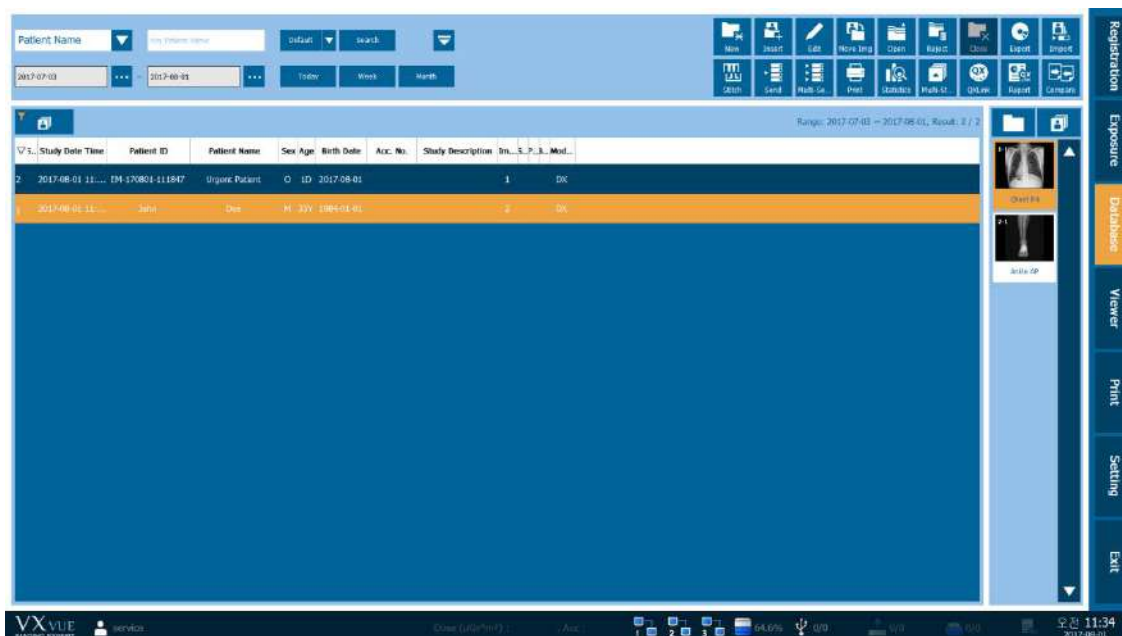
Mini or Small Layout



- If the step and image view areas cannot be displayed together at the currently set resolution, they will be displayed separately.
- The step area is switched to the view area when you make an exposure after setting steps.
- After making the exposure, click or touch **Add Step** button at the bottom of thumbnail to switch the area to the step area.

Wide Layout

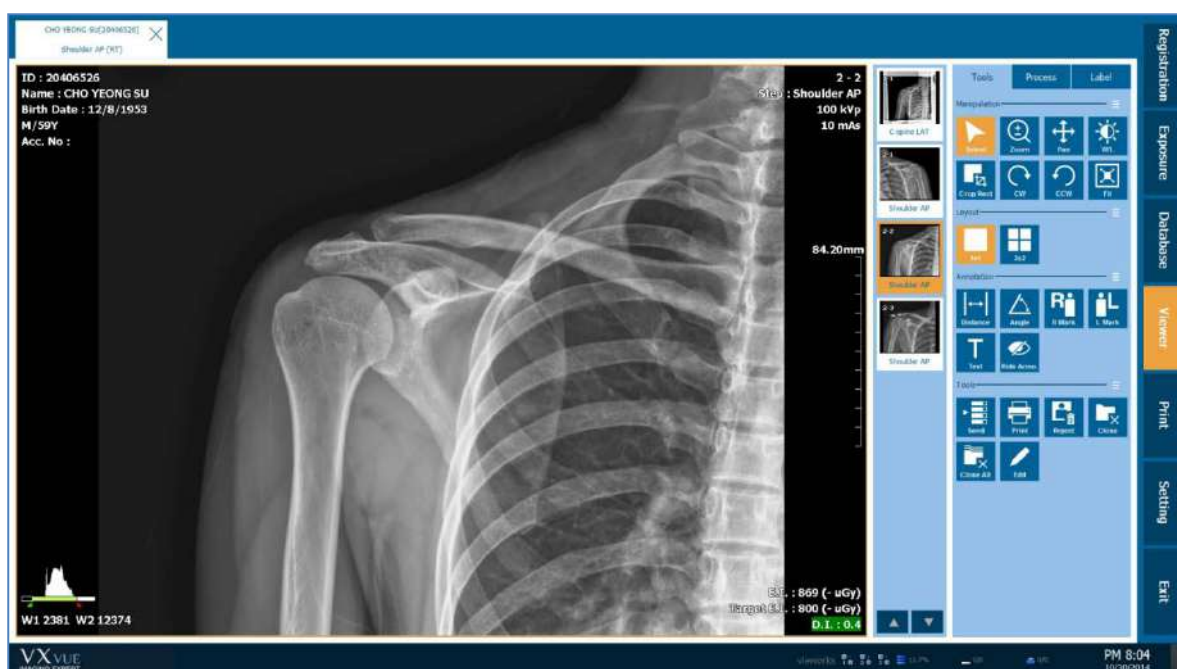
- If the step and image view areas cannot be displayed together at the currently set resolution, they will be displayed separately.

4.3.3 Database mode



- Click on   button to expand or reduce the search condition window.

4.3.4 Viewer mode



4.3.5 Print mode



- You need to arrange the **Exposure** mode effectively as this mode is consisted of various areas for making the exposure. In **Ecoview**, the layout of each area is changed automatically depending on the screen resolution. You can also change the layout with using shortcuts like **F5**, **F6**, **F7**, and **F8**.
- Refer to <10.5.2 Shortcuts> for the detailed information about shortcuts.

4.4 Touch-Oriented

4.4.1 Touch Function

If you use devices like a monitor and tablet PC support a touch screen, you can use the touch function in **Ecoview**.




- Although the touch function is supported to all skin themes, the **Sapphire Blue** skin is designed to be more suitable for using the function.

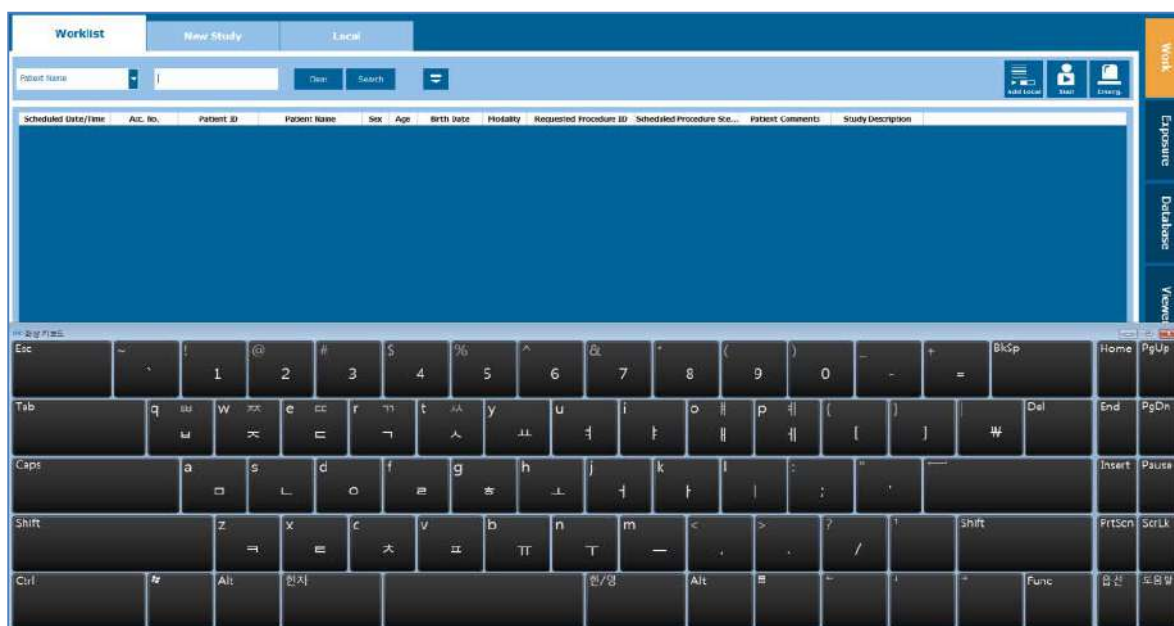


- The touch function is not supported in the Setting mode of Ecoview.

4.4.2 Virtual Keyboard

Ecoview supports a virtual keyboard function. This keyboard is displayed when you choose a text box for entering data. Touch the virtual keyboard to inputting data directly.

- 1 Touch a text box to display the virtual keyboard.
- 2 Touch the keys of virtual keyboard to entering data.
- 3 The virtual keyboard is disappeared if you click the other area such as a list or click on  button.



- The virtual keyboard function uses **On Screen Keyboard (OSK)** provided by Windows.
- Install **Windows Service Pack 1** or the above. If not, the process speed of virtual keyboard can be lowered.



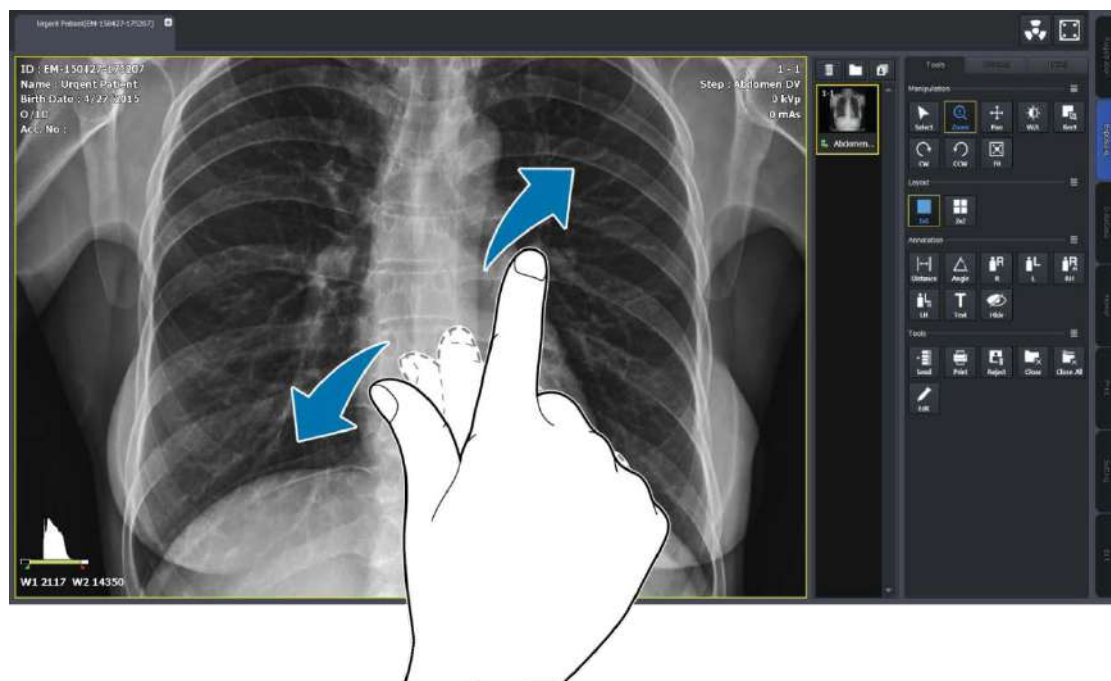
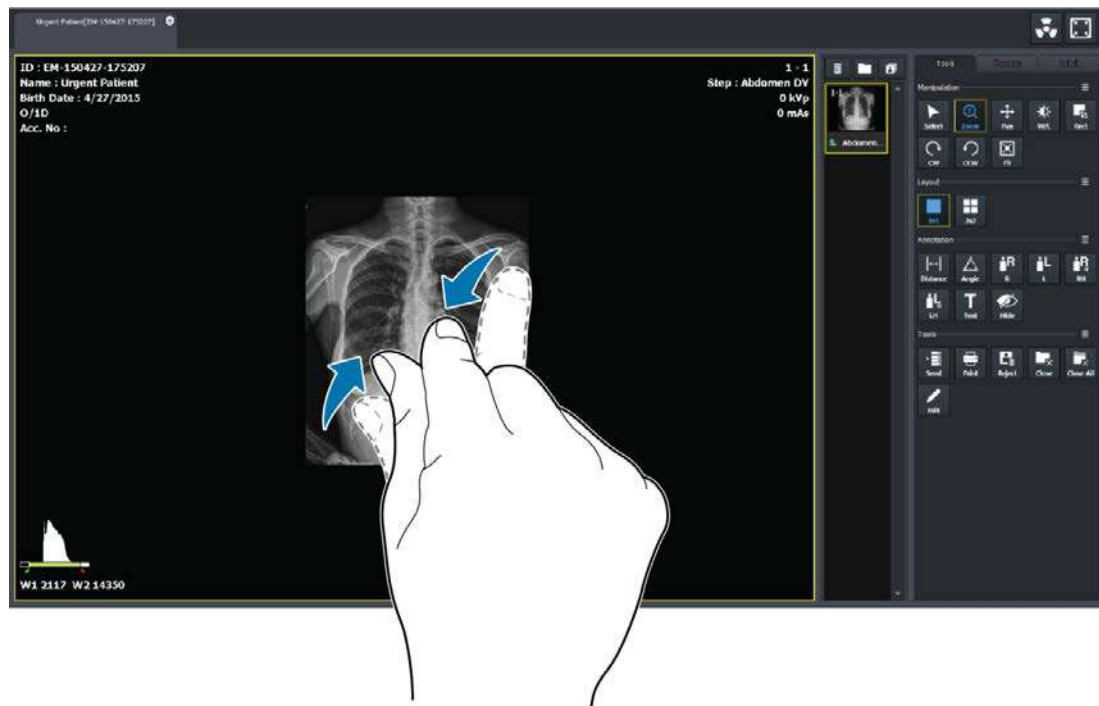
- Set **Use virtual keyboard** to **Yes** from **Setting** → **System** → **Theme** menu to use the virtual keyboard.

4.4.3 Specialized Function for Touch

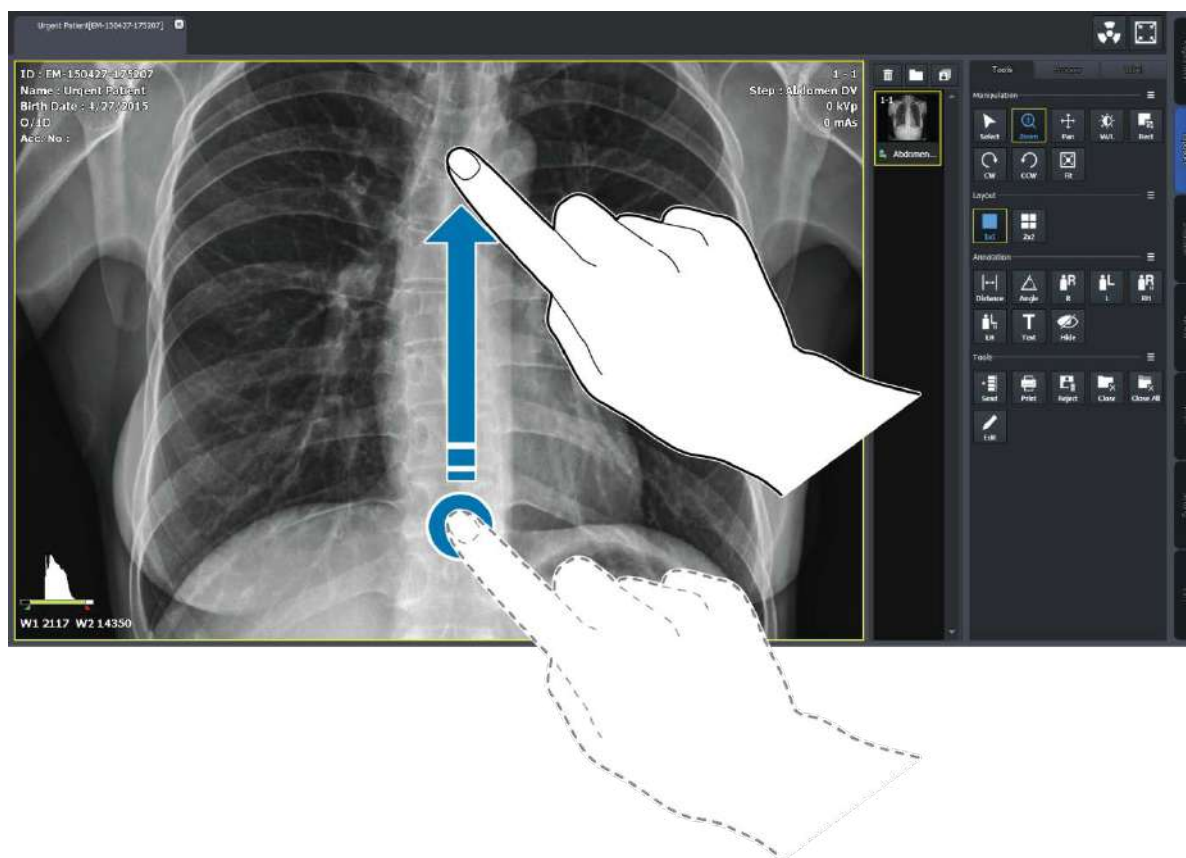
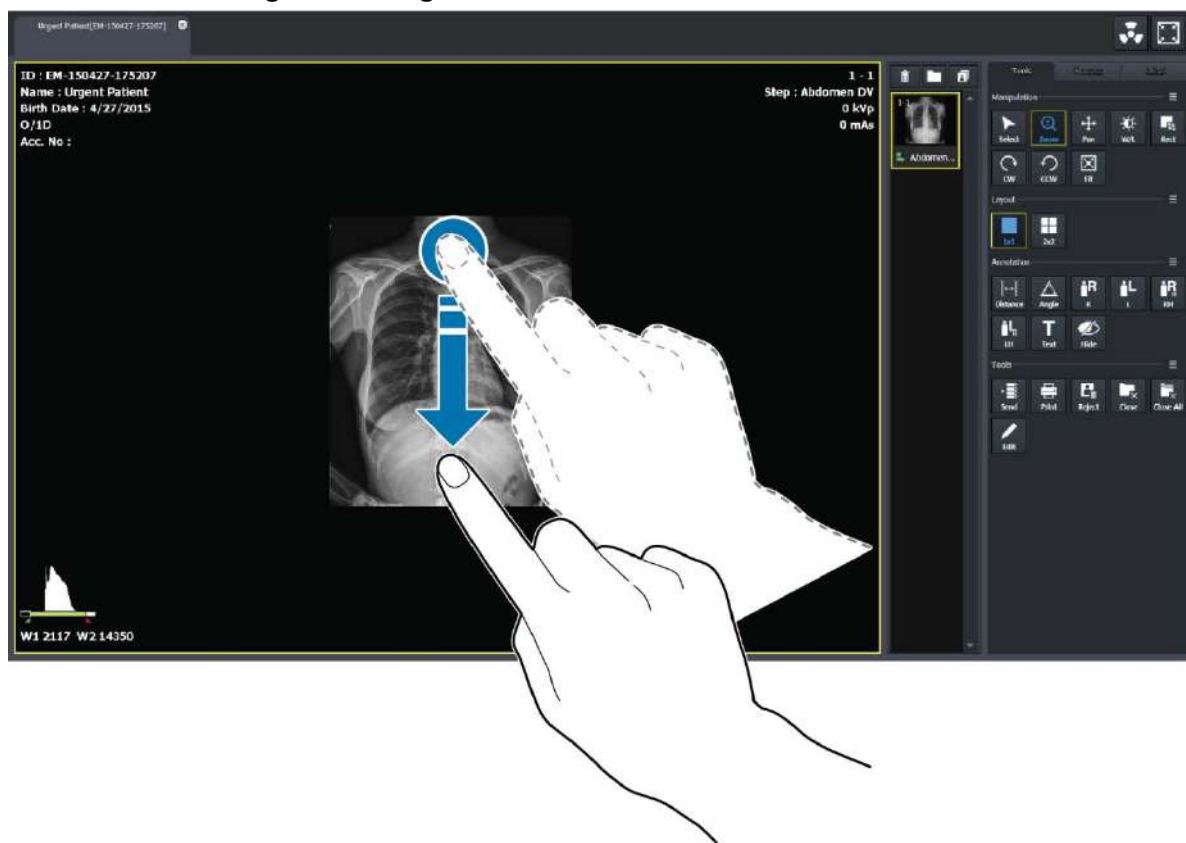
Pin Zoom

Ecoview supports the **Pin Zoom** function, allows the user to zoom in or out the image conveniently.

Zoom in / out the image with fingers

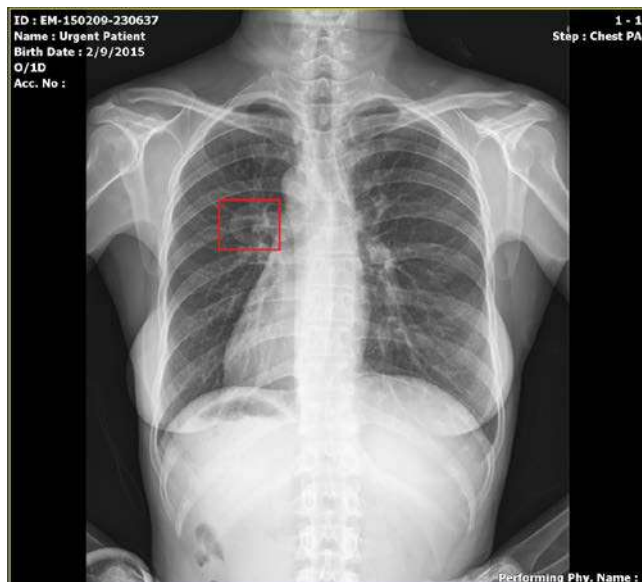


Zoon in / out the image with a finger



Changing the image adjustment tool

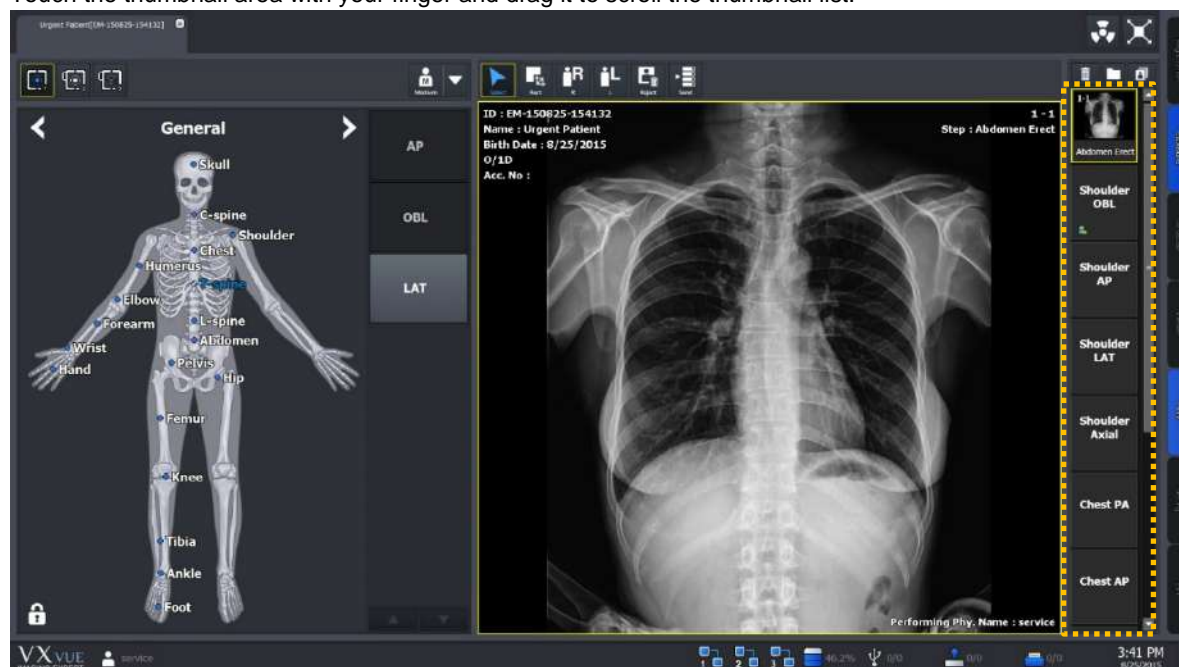
- 1 Acquire an image or display it by opening the exposed study.
- 2 Touch image display region on the screen for 0.5 second, than the screen changes to Pan mode after the status of mode conversion is indicated.




- 3 Keep touching your finger on the screen to move the image.
- 4 Lift your finger from the screen to return to the previous mode.

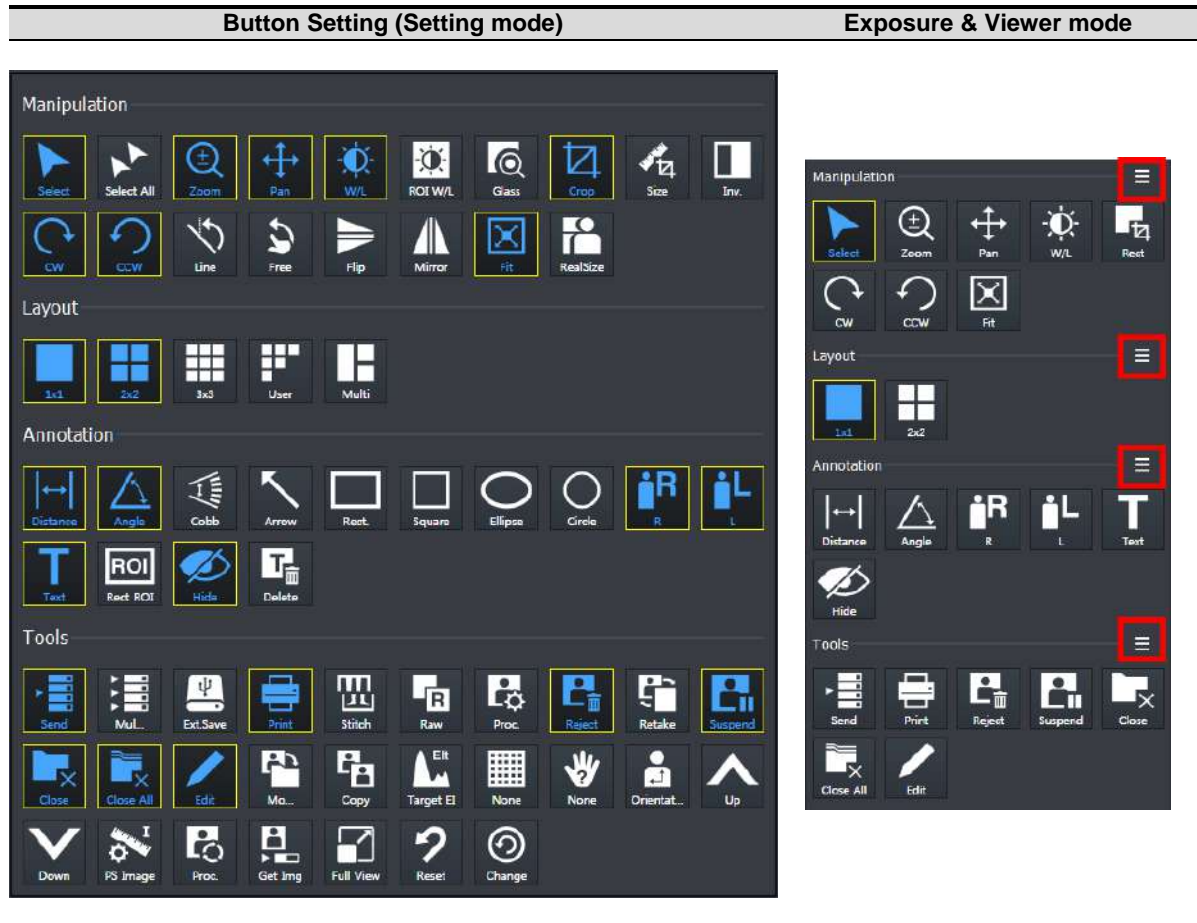
Thumbnail Touch Scroll

Touch the thumbnail area with your finger and drag it to scroll the thumbnail list.



4.4.4 Button Icons

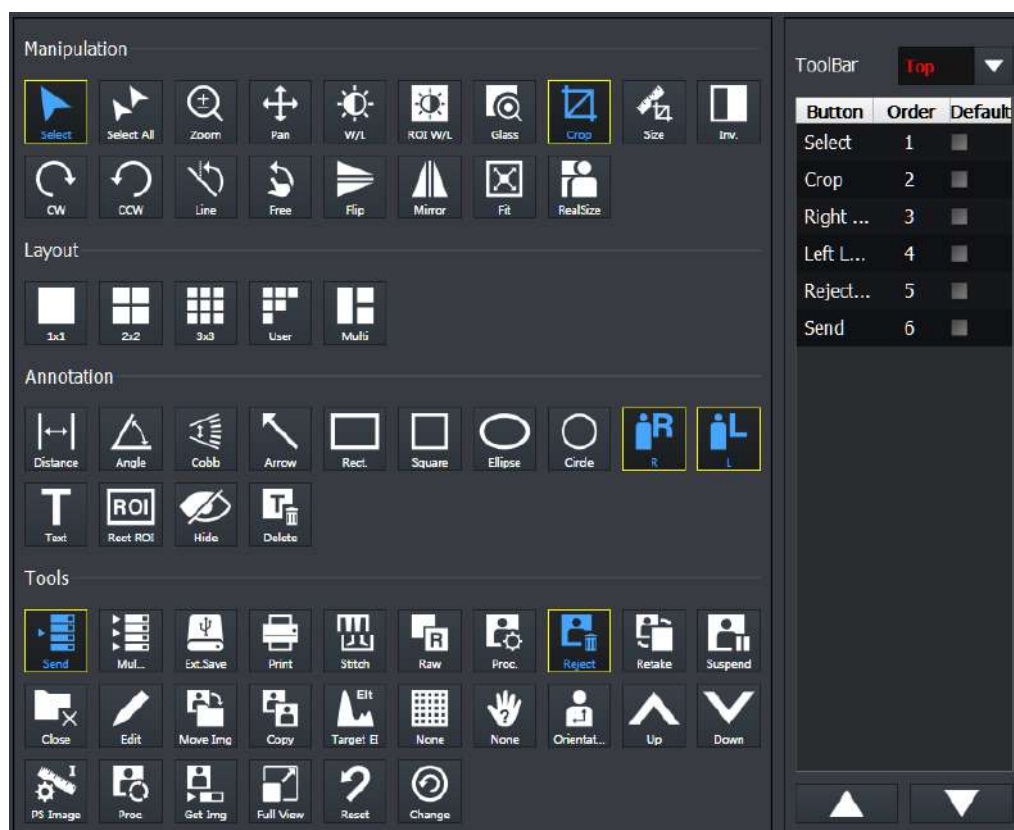
- Select the desired icons to display from **Setting** → **Tool** → **Image Tool** menu.
- The color of selected icons becomes blue.
- Check the selected icons from **Tools** panel in the **Exposure** mode and the **Viewer** mode.
- Click on **Detail**  button to find the hidden icons.



4.4.5 Quick Access Icons

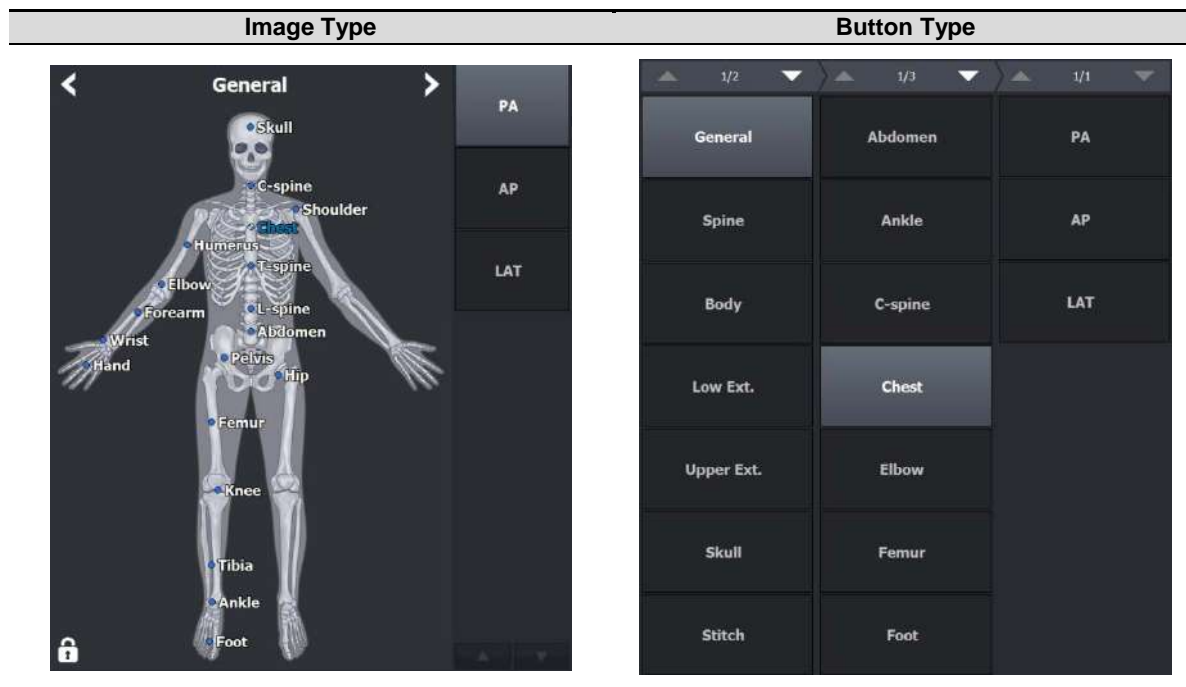
- Set the user-defined icon group by collecting frequently-used icons from **Setting** → **Tool** → **Quick Access** menu.
- The color of selected icons becomes blue.
- You can set the displayed order of selected icons.
- Check the selected icons from **Process** panel in the **Exposure** mode and the **Viewer** mode.
- Check the selected icons from user-defined tools area in the **Exposure** mode.

Quick Access Setting (Setting mode)

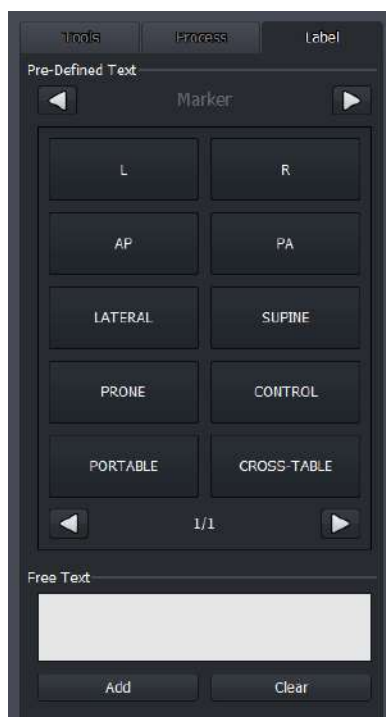


4.4.6 Step Button

- The **Step** area in the **Exposure** mode is provided as two types – **Image** type and **Button** type.
- Click **F8** shortcut in the **Exposure** mode or change settings in the **Setting** mode to switch each type in real time.



4.4.7 Pre-defined Text Button



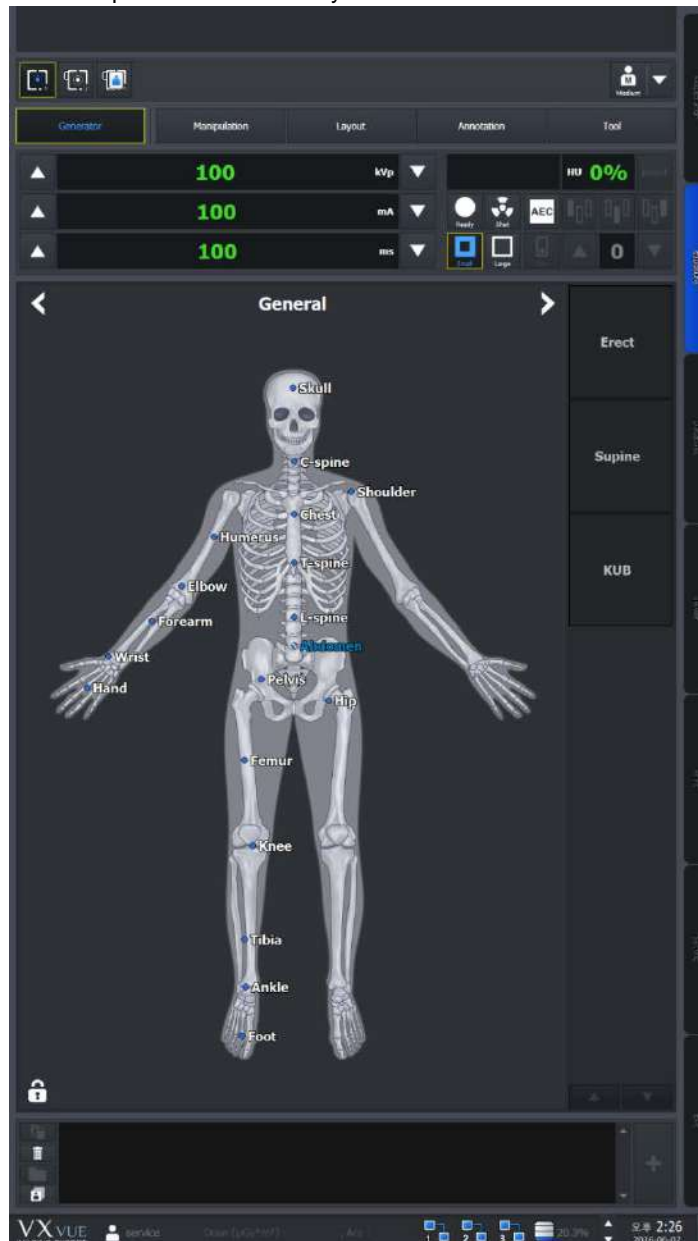
- The user-defined text buttons are supported which are the pre-defined ones used frequently.
- Refer to Tool Group in Ecoview Service Manual for the detailed information about setting **Pre-defined Text**.

4.5 Auto Rotation of UI

- The user interface of **Ecoview** is rotated automatically when the screen resolution of a device such as a tablet is changed by rotating it.
- If the vertical resolution is bigger than the horizontal one when you rotate a device, its screen is changed as a vertical layout automatically.

4.5.1 Vertical Layout

Ecoview provides a vertical layout when vertical resolution of the screen is bigger than horizontal resolution.



- Vertical Layout is applied normally when horizontal resolution of the screen is more than 1080.

5. How to Register Patient Prescribing Information

This section provides information about registering the patient prescribing information.

Scheduled Panel (Worklist)
Unscheduled Panel
Reserved Panel

5.1 Scheduled Panel (Worklist)

You can bring the patient information from the **Scheduled** panel by using DICOM Worklist.

- 1 Input or choose search conditions and click on the **Search** button.
- 2 Check the searched **Scheduled** list and choose the desired item.
- 3 Process the next step by selecting one of the tool buttons in the **Scheduled** panel.



- DICOM Worklist server should be configured to use Worklist. Refer to MWL memu in Ecoview Service Manual for setting the Worklist server.

5.1.1 Scheduled Tools

Scheduled search tools

You can get the patient information list by using the search tools in **Scheduled**.

Tool buttons of Scheduled

Icon	Name	Description
	Start Study	Starts making an exposure with the patient information of the Scheduled items.
	Emergency	Starts making an exposure for the emergency patient irrespective of the Scheduled items.
	Multi Select	Selects the multiple Scheduled items.
	Send to wireless detector	Sends the patient information of the Scheduled items to a wireless detector.
	Add to Reserved	Adds Scheduled items to the Reserved database.
	Reject Worklist Item	Deletes Scheduled items.

5.1.2 Searching Scheduled

Check the Scheduled search condition

- You can search the **Scheduled** items by using the search tools.
- Six search conditions are provided for searching studies.
- **AND** arithmetic operation is applied to the input search condition.

Search item	Description	Input method	Partial search	Allowed characters
Patient ID	Patient ID	Entry	Possible	(,) , + , - , _ , /
Patient Name	Patient name	Entry	Possible	(,) , + , - , _ , @ , / , ' , `
Accession Number	Prescription no.	Entry	Possible	(,) , + , - , _ , @ , ' , ` , ~ , ! , ? , @ , # , : , ; , , , ,
Station Name	Exposure site	Check and input	Possible	None
Modality	Device code	Check and select one	Impossible	None
Scheduled Date	Appointment date	Select date	Impossible	None

Patient ID / Patient Name / Accession Number

- You can search one of the three items (Patient Name, Patient ID, Accession Number) or all items by selecting 'ID, Name, Acc No'.
- Input information you want to search.
 - You can input or search the items partly.
 - If you choose all three items, the search work is applied for each item.

Station Name

- Choose search condition of **Station Name** by checking the box.
- The items of search condition can be added or deleted from **Setting → Registration → Scheduled**.

Modality

- You can select search condition of **Modality** by checking the box.
- Select one of the three options - **DX**, **CR**, **DR**.

Station AE Title

- You can select search condition of **Station AE Title** by checking the box.
- The items of search condition can be added or deleted from **Setting → Registration → Scheduled**.



- Go to **Setting → DICOM → General** to set the default value of **Station Name** and search condition of **Station AE Title**.

Scheduled Date

- There are two ways of inputting **Scheduled Date**.
 - Press the period selection buttons (**Today**, **Week**, **Month**)
 - Input dates by clicking a mouse button (Start Date, End Date)



- 1 Input **Scheduled Date** by selecting the period button.
 - The period of a day, a week and a month are input automatically on the basis of the current date.
- 2 Select **...** to input the scheduled date with a mouse button from the keypad of pop-up calendar.
 - Select two options (**Start Date** and **End Date**) separately.
 - Change the date easily by clicking it from the keypad.

Initilaize the search conditions

- Select **Default** or **Clear** button to initialize the search condition.
 - **Default** : The values of **Scheduled Start Date** and **End Date** become initialized as today's date.
 - **Clear** : It is initialized to search conditions that include all dates. The condition is disabled if Auto Refresh is active.

Search

- Click on the **Search** button to start search after setting the search conditions.
- All study data is searched if you search the data under the initialized state.

View the searched result

- Click on the **Search** button and check the result in the searched study list. You can check the patient and study appointment information of each **Scheduled** item.

Scheduled Station AE Title	Scheduled Station Name	Scheduled Date/Time	Acc. No.	Patient ID	Patient Name	Sex	Age	Birth Date	Modality	Requested Procedure ID	Scheduled Procedure Sta
ROOM1	100W	2013-02-15 15:26:08	150805	02150805	Iowah	F	1D	2013-02-15	CR		Ba-Reduction
ROOM1	100W	2013-02-15 15:26:08	150801	02150801	rjucc	M	1D	2013-02-15	CR		Ba-Reduction
ROOM1	100W	2013-02-15 15:26:08	150802	02150802	lyhuk	F	1D	2013-02-15	CR		Ba-Reduction
ROOM1	100W	2013-02-15 15:26:08	150803	02150803	pfubu	M	1D	2013-02-15	CR		Ba-Reduction

- The Patient and scheduling information that are searched for in the following three conditions appear in the checklist.



- 1 **All**: All patient information and schedule information appears.
- 2 **Taken**: Only the patient information with images and the schedule information are displayed.
- 3 **Untaken**: Only patient information without images and scan schedule information are displayed.



- If the search condition is hidden in Sapphire Blue skin, the Scheduled Start Date and End Date are not initialized.

- Click the searched item to check its scheduled procedure items from the following list.
 - Headers of the procedure list cannot be modified.
 - The scheduled item will not be indicated if it does not include a procedure.

SPS ID	SPS StartDate	SPS Description	Modality	ScheduledPerformingPh...	ScheduledProtocolCode...
62185590	20160603	ITEM_1	DR		1, 112
62185591	20160603	ITEM_2	DR		

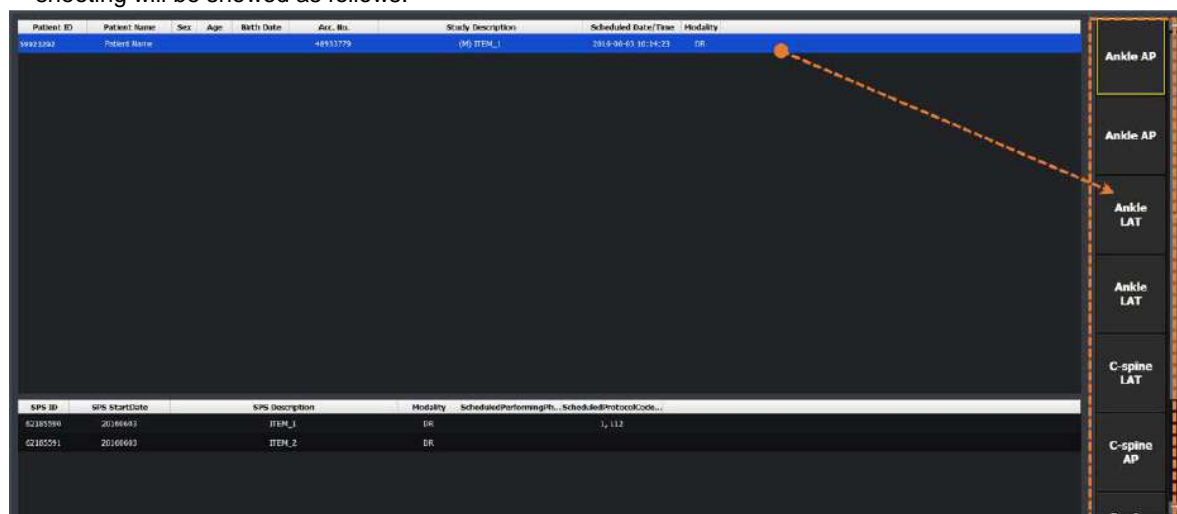
- Shows or hides the list of procedures that display the Scheduled Procedure entry for the selected item at the bottom of the screen.



- 4 **Show SPS List**: All patient information and schedule information appears.

5 **Hide SPS List:** Only the patient information with images and the schedule information are displayed.

- If the searched item is mapped with a procedure code of **Ecoview**, the steps of mapped procedure for shooting will be showed as follows.



- Refer to <10.4 Managing the List Header and Field> for more information about headers and fields of the searched list.

Renew the search result automatically



- Check **Auto Refresh** to automatically renew the patient information transmitted from DICOM Worklist Server.
- Set the interval for renewing patient information from **Setting** mode → **DICOM** tab → **MWL**.

5.1.3 Canceling for Searching Scheduled

- Press the ESC key to stop searching Scheduled (while the progress circle is rotated).
 - The searched result before stopping search will display on the screen.

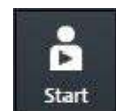
5.1.4 Using Scheduled Items

Add to Reserved



- Save the patient information to **Reserved** in advance, and use the data when you cannot use the **Scheduled** item.
- 1 Select the **Scheduled** item to be saved to **Reserved**. You can select multiple items using **Ctrl** or **Shift** key.
 - 2 Click on the **Add to Local** button and save the selected items to the local database.
 - 3 Check the saved items from the **Reserved** tab.

Start Study



- 1 Selet the scheduled items to make an exposure. You can select multiple items using **Ctrl** or **Shift** key. When you select multiple items, the 1st selected item will start being exposed.
- 2 Click on the **Start to Study** button to start taking images.
 - The exposure will be started with the patient and prescribing information of the selected **Scheduled** item.
 - The screen is switched to the **Exposure** mode automatically.

Register new Procedure Code

If an unregistered **Procedure** code is found in the Scheduled item brought from Worklist server, a notice is generated to ask whether to register the new code to Procedure in **Ecoview**. You can add or update the Procedure information whenever an unregistered code is found while taking images.



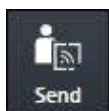
1 If you register an unregistered Procedure code, click on the **Yes** button to display the **Step List** dialog of **Setup Procedure** and register the new **Procedure** code.

- Click on the **New** button and generate a new **Procedure**.
- Click on the **Copy From** button to copy the registered **Procedure** and generates a new one.
- Click on the **Mapping** button and map the new procedure to the existed **Procedure**.



- Refer to <10.4 Managing the List Header and Field> for more information about headers and fields of the searched list.

Send Worlist items to the wireless detector



Select the **Scheduled** items from the list to move them to the wireless detector.

- You can select multiple items using **Ctrl** or **Shift** key.
- 2 Click on the **Send to Wireless Detector** button and send the items to the wireless detector.
- The button is not showed if a wireless detector is not connected.
 - The transmitted item can be searched from mobile devices such as a laptop, tablet and a smart phone.



- Refer to <Ecoview Portable Mode> guide for the information about wireless exposure.

Start emergency exposure



- Click on the **Emergency** button to start the emergency exposure irrespective of the **Scheduled** item.
 - The screen is switched to the **Exposure** mode automatically.
- The ID and name of the emergency patient is input automatically based on the present date and time.
 - The ID form is **EM-YYMMDD-HHMMSS**.
 - The name is **Urgent Patient**.



- Refer to <10.2 Emergency> for more information about the emergency exposure.

Multi select



- Click on the **Multi Select** button to select multiple **Scheduled** items.

5.2 Unscheduled Panel

You can input the patient information from the **Unscheduled** panel.

- The patient information can be stored to the local database.
- You can make an exposure after inputting the patient information.
- You can start an emergency exposure without inputting the patient information.









The screenshot shows the 'Unscheduled Panel' form. It includes the following fields and controls:

- Scheduled Date Time:** 2014-09-23 22:03:47
- Acc. No.:** [Empty text box]
- Patient ID:** [Empty text box]
- Last Name:** [Empty text box]
- Birth Date:** [Date picker showing 1999-11-01]
- Age:** 1 [Dropdown menu showing Y]
- Sex:** Other [Dropdown menu]
- Height / Weight:** 0.00 cm, 0.00 kg
- Procedure:** --None-- [Dropdown menu]
- Referring Physician:** [Empty dropdown menu]
- Performing Physician:** [Empty dropdown menu]
- Patient Comments:** [Empty text area]
- Study Description:** [Empty text area]
- Institution Residence:** [Empty text box]
- Diagnosis Description:** [Empty text box]
- Additional History:** [Empty text area]
- Procedure Priority:** ROUTINE [Dropdown menu]
- Reading Physician:** [Empty dropdown menu]
- Institution:** Vieworks [Dropdown menu]
- Buttons:** Emergency, Add to Reserved, Start Study

5.2.1 Patient Prescribing Information

Item	Input Method	Note
Scheduled Date Time	None	Comply with the current date and time format of Windows OS.
Accession Number	Manual input	Patient prescribing information
Patient ID	Manual input	Patient ID
Patient Name (Last Name)	Manual input	Patient name (Last Name, First Name, Middle Name, Prefix, Suffix)
Birth Date	Optional	Birth date of patient
Age	Calculation/Optional	D (Day), M (Month), Y (Year)
Sex	Optional	M (Male), F (Female), O (Others)
Height / Weight	Manual input	Height / Weight unit.
Procedure	Optional	Exposure study code.
Referring Physician	Optional	Referring physician name.
Performing Physician	Optional	Performing physician name of the study.
Patient Comment	Manual input	Additional patient information.
Study Description	Manual input	Additional study information.
Institution Residence	Manual input	Address of the institution.
Diagnosis Description	Manual input	Describing the diagnosis opinion.
Additional History	Manual input	Past medical record
Procedure Priority	Optional	Priority order of studies (STAT, HIGH, ROUTINE, MEDIUM, LOW)

Reading Physician	Optional	Physician name who reads the image
Institution	Optional	Institution name where the study is conducted.

	<ul style="list-style-type: none">• The items that required to be entered are indicated as a green color.• You can set the required items directly.• Refer to Registration group in Ecoview Service Manual for the information about setting required input items.
	<ul style="list-style-type: none">• The special characters allowed to be inserted to manual items are (,) , + , - , _• Some values of the optional items should be set from the Setting mode in advance.
	<ul style="list-style-type: none">• You can generate accession number automatically by selecting Use auto access number-Yes from Setting → Registration → General.
	<ul style="list-style-type: none">• If you input the pre-existing patient ID, the following information will be input and displayed automatically.<ul style="list-style-type: none">▫ Patient ID, Patient Name, Birth Date, Sex, Patient Comments• If different patient names have a same ID, a window for patient name selection is displayed. You can select a patient name from the window.• The input items of Patient Name are divided to five (5) itmes as follows.<ul style="list-style-type: none">▫ Prefix, First Name, Middle Name, Last Name, Suffix• Last Name is the compulsory one represents Patient Name. You can also add the desired name item to use.• Refer to Registration group in Ecoview Service Manual for the details about setting the patient information.
	<ul style="list-style-type: none">• Put the mouse cursor on a month, day, year / hour, minute, second items of Scheduled Date Time and press the arrow keys (↑↓) to change each item.
	<ul style="list-style-type: none">• Age is calculated and input automatically when you enter Birth Date first.• The unit options of Height / Weight are Metric (kg / cm) and English (lb / ft).
	<ul style="list-style-type: none">• You can register a physician name to Referring / Performing / Reading Physician in advance.• You can register the names of hospital and institution to Institution in advance.• The maximum number of input/output letters of Diagnosis Description and Institution Residence is limited to 64.• Refer to Registration group in Ecoview Service Manual for the detailed information about setting the hospital and institution information.
	<ul style="list-style-type: none">• If you take images after selecting Procedure, the matched Step is registered automatically.• You can select the exposure priority from Procedure Priority.<ul style="list-style-type: none">▫ STAT / HIGH / ROUTINE / MEDIUM / LOW• Refer to Procedure Manager in Ecoview Service Manual for the detailed information about the study procedure.

5.2.2 Inputting Patient information Directly

Input information manually and add to the reserved

- 1 Input the patient information manually.
- 2 Click on the **Add to Reserved** button and save the information to the **Reserved** database.
 - You can check the information from the **Reserved** tab.

Input information manually and start study

- 1 Input the patient information manually.
- 2 Click on the **Start Study** button and make an exposure.
 - The screen is switched to the **Exposure** mode automatically.

Start emergency exposure

- 1 Click on the **Emergency** button.
 - The emergency exposure is started irrespective of the patient information.
 - The screen is switched to the **Exposure** mode automatically.
- The ID and patient name is inserted automatically based on the present date and time.
 - The patient ID form is **EM-YYMMDD-HHMMSS**.
 - The patient name is **Urgent Patient**.



- Refer to <10.2 Emergency> for more information about the emergency exposure.
-

5.3 Reserved Panel

From the **Reserved** panel, you can use the patient information reserved by clicking on the **Add to reserved** button in **Scheduled** or **Unscheduled**.

5.3.1 Tools in Reserved Panel

Reserved search tools

You can bring the patient information stored in the database by using the **Reserved** search tools.

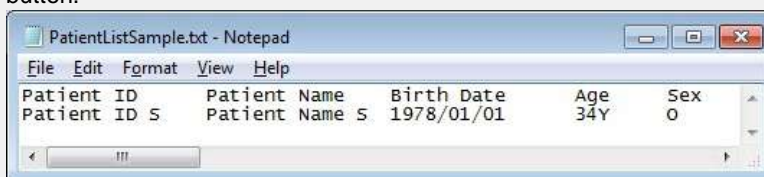
Import patient information from the outside



- Import the patient information stored as the text (.txt) file format and register it to the **Reserved** panel.
- Click on the **Import Patient Order** button to open the **Import Patient Order** dialog.

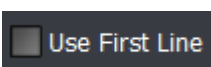


- Since the patient information as the text (.txt) file is parsed according to the rules for each row and column, refer to the template files (**PatientListSample.txt**) by clicking on **Export** button.



- The patient information (Patient ID/ Patient Name/..) is divided into tabs.
 - The unit of patient is divided into carriage characters (Enter).
 - You can move and edit the patient information in Excel. When the edit is completed, be sure to import the file after changing its format to '.txt'.

- Specify the path of text file that the patient information is recorded.











- Check **Use First Line** to use the first line of text file as patient information.
- Uncheck **Use First Line** to use the first line of text file as the information for column mapping.



- The function of **Import Patient Order** is supported for the human version of **Ecoview** only.

Tool buttons in Reserved panel

Icon	Name	Description
	Send to wireless detector	Sends the patient prescription information in Reserved items to the wireless detector.
	Start Study	Starts taking images with the patient prescription information in the Local items.

	Emergency	Starts taking images of an emergency patient irrespective of Reserved items.
	Multi Select	Selects multiple Reserved items.
	Edit Patient	Modifies the patient prescription information in the Reserved item.
	Delete	Deletes the patient prescription information in the Reserved item.
	Import	Adds patient information read from a file to the Reserved item.
	Export	Export all searched patient prescription information displayed on the screen as a text file (.csv). <ul style="list-style-type: none"> Only Patient ID, Patient Name, Accession Number, Patient Sex, and Scheduled Date items are stored.

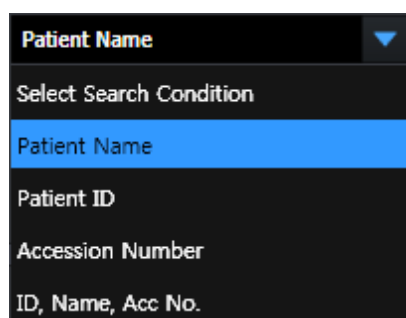
5.3.2 Searching Reserved Information

Check the search condition

- You can search the patient information by using search tools in the **Reserved** panel.
- The **AND** arithmetic operation is applied to the inputted search condition.

Search item	Input method	Partial search	Allowed characters
Patient ID	Input	Possible	(,) , + , - , _ , /
Patient Name	Input	Possible	(,) , + , - , _ , @ , / , ' , `
Accession Number	Input	Possible	(,) , + , - , _ , @ , / , ' , ` , ~ , ! , ? , @ , # , : , ; , , , ,
Patient Age	Select a unit and input age	Possible	None
Patient Sex	Select	Impossible	None
Scheduled Date	Select date	Impossible	None

Patient ID / Patient Name / Accession Number / Group Name



- You can search one of the three items (Patient Name, Patient ID, Accession Number) or search all items by selecting 'ID, Name, Acc No'.
- Input information you want to search.
 - You can input or search the items partly.
 - If you choose all three items, the search work is applied for each item.

Patient Age



- Select the age unit options and insert numbers.
- Select one of the options among **D** (Day), **M** (Month), **Y** (Year).

Patient Sex



- Select the gender of a patient.
- Select one among **M** (Male), **F** (Female), **O** (Other).

Scheduled Date



- There are two ways of inputting **Scheduled Date**.
 - Press the period selection buttons (**Today**, **Week**, **Month**)
 - Input dates by clicking a mouse button (Start Date, End Date)



- Input **Scheduled Date** on the keypad calendar with a mouse button by selecting **...**.
 - Select two options (**Start Date** and **End Date**) separately.
 - Change the date easily by clicking a mouse button on the keypad calendar.

Initialize the search conditions

- Select the **Default** or **Clear** button to initialize the search condition.
 - **Default**: The values of **Scheduled Start Date** and **End Date** become initialized as today's date.
 - **Clear**: Initialized to search conditions that include all dates.



- In **Sapphire Blue** skin, the scheduled start date and end date are not initialized if the search condition is hidden.

Search and check the result

- Start searching studies by clicking on the **Search** button after setting the search conditions. If you search studies under the initialization status, all study data will be searched.
- Check the searched result on the study list after clicking on the **Search** button. You can check the patient information of each **Reserved** item.

Scheduled Date/Time	Acc. No.	Patient ID	Patient Name	Sex	Age	Birth Date	Modality
2013-02-15 15:32:31		20130215	kim	O	001D	2013-02-15	DX
2013-02-15 15:26:08	150805	02150805	lowah	F	1D	2013-02-15	CR

- The Patient and scheduling information that are searched for in the following three conditions appear in the checklist.



- 1 **All**: All patient information and schedule information appears.
- 2 **Taken**: Only the patient information with images and the schedule information are displayed.
- 3 **Untaken**: Only patient information without images and scan schedule information are displayed.

- Click the searched item to check its scheduled procedure items from the following list.
 - Headers of the procedure list cannot be modified.
 - The scheduled item will not be indicated if it does not include a procedure.

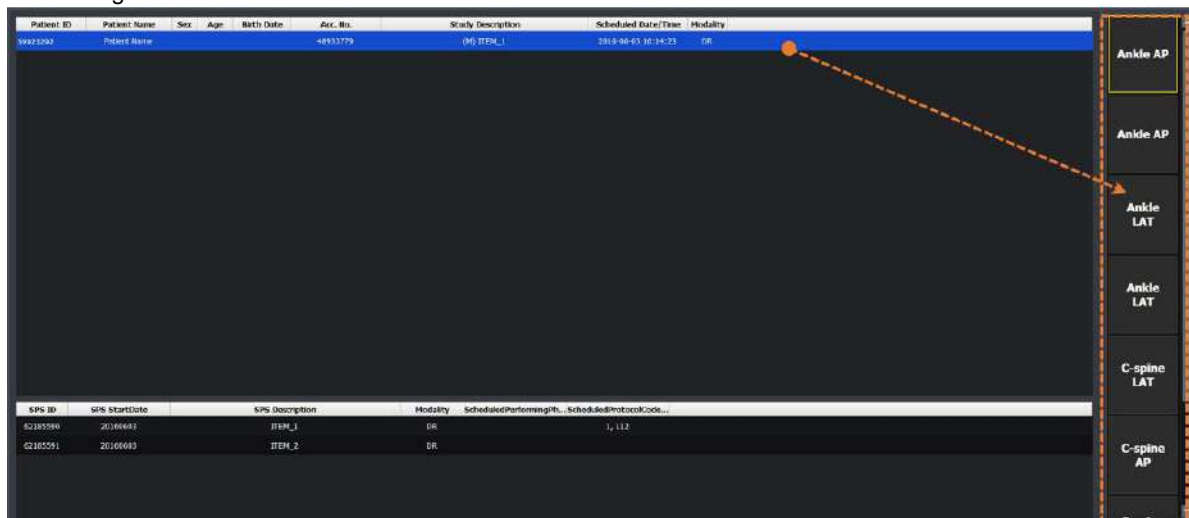
SPS ID	SPS StartDate	SPS Description	Modality	ScheduledPerformingPh...	ScheduledProtocolCode...
62185590	20160603	ITEM_1	DR		1, 112
62185591	20160603	ITEM_2	DR		

- Shows or hides the list of procedures that display the Scheduled Procedure entry for the selected item at the bottom of the screen.



- 1 **Show SPS List**: All patient information and schedule information appears.
- 2 **Hide SPS List**: Only the patient information with images and the schedule information are displayed

- If the searched item is mapped with a procedure code of **Ecoview**, the steps of mapped procedure for shooting will be showed as follows.

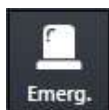


5.3.3 Using Information in Reserved

Select items

Select items in **Reserved**. You can select multiple items by using **Ctrl** or **Shift** key.

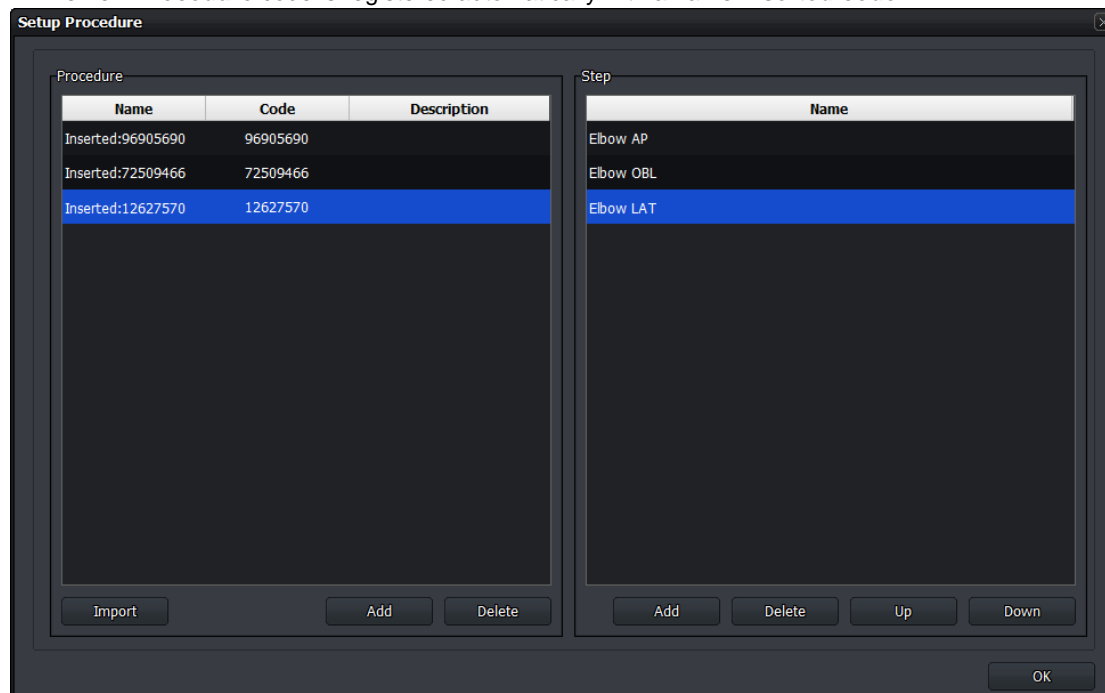
Start Study



- Start acquiring an image by clicking on the **Start to Study** button.
 - The screen is switched to the **Exposure** mode automatically.
 - The exposure is started with the patient and prescribing information of the selected item.
 - When you select multiple items by pressing Ctrl or Shift key, the detector starts taking images from the item that you selected first.

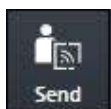
Register the new Procedure code at the beginning of exposure

- The **Setup Procedure** code window is displayed when a new code is found at the beginning of exposure.
- The new **Procedure** code is registered automatically with a name **Inserted:code**.



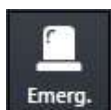
- Refer to Procedure Manager in Ecoview Service Manual for more information about the procedure code.

Send reserved items to the wireless detector



- 1 Select the items in **Reserved** which are moved to the wireless detector from the list.
 - You can select multiple items using **Ctrl** or **Shift** key.
- 2 Click on the **Send to Wireless Detector** button and send the item to the detector.
 - This button is not showed if a wireless detector is not connected.
 - The item can be searched from mobile devices such as a laptop and a tablet.

Start emergency exposure

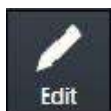


- Click the **Emergency** button to start emergency shooting regardless of Scheduled.
 - The screen is switched to the **Exposure** mode automatically.
- ID / name of emergency patient are entered automatically based on current date and time.
 - The **ID** form is **EM-YYMMDD-HHMMSS**.
 - The patient name is **Urgent Patient**.



- Refer to <10.2 Emergency> for more information about the emergency exposure.

Correct the patient information



- 1 Click the **Edit Patient** button to correct the patient information at the **Edit Patient** window.
 - Not the existing study and shoot information but only the patient information can be corrected.
 - You cannot correct multi-patient information at the same time.
- 2 Click on the **Edit** button and update the corrected information.

The 'Edit Patient' window is a dark-themed dialog box. It contains the following fields:

- Acc. No.: Text box with '3'.
- Patient ID: Text box with '3'.
- Patient Name: Text box with '3'.
- Birth Date: Date picker showing '5/1/2013'.
- Age / Sex: Text box with '1', a dropdown with 'D', and a dropdown with 'O'.
- Height / Weight: Two text boxes, one with '0.00' and 'cm', the other with '0.00' and 'kg'.
- Referring Physician: Text box.
- Patient Comments: Large text area.
- Study Description: Large text area.

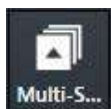
At the bottom are 'Edit' and 'Cancel' buttons.

Delete the patient information



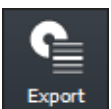
- Click on the **Delete** button to delete items in the **Reserved**.
- You cannot delete the exposed studies and their information.

Multi Select



- Click on the **Multi Select** button to choose multiple items in the **Reserved**.
- You can send the selected items to the **Exposure** mode.

Export



- Export the patient prescription information as a text file (.csv) by clicking the **Export** button.
- All searched prescription information is exported.

6. How to Shoot Images

This section gives basic information for the way to acquire images.

- Basic Exposure Procedure
- Registering Patient Information
 - Selecting a Detector
 - Selecting Patient Size
 - Selecting Category and Step
 - Making an Exposure
- Processing and Adjusting Images Additionally
 - Closing the Exposure
 - Importing Images from the Detector

6.1 Basic Exposure Procedures

You can make an exposure with the following basic steps.

	Item	Instruction
1	Register Patient Info.	Register the patient information and start a study.
2	Select a Detector	Select a detector for making an exposure.
3	Select Patient Size	Select a patient size.
4	Select Category	Select a category for making an exposure
5	Select Procedure Step	Select a procedure step includes exposure conditions.
6	Acquire Image	Make an exposure and acquire images.
7	Process the Image	Check and process the image.
8	Adjust the Image	Adjust the image appropriately.
9	Complete	Finish the exposure.

6.2 Registering Patient Information

Register the patient information first from the **Registration** mode for making exposure.

- You can register the patient information at the **Registration** mode by three ways as follows.

Panel	Description
Scheduled	Import the patient information by using DICOM Worklist.
Unscheduled	Input the patient information directly.
Reserved	Use the patient information reserved in advance.

Example of registering procedures

- 1 Move to the **Unscheduled** panel in the **Registration** mode.
- 2 Input the new patient information.
- 3 Click on the **Start Study** button after inputting the patient information.
- 4 Start making an exposure after the screen is switched to the **Exposure** mode.



- Refer to <5 How to Register Patient Prescribing Information> for the way of registering patient information.

6.3 Selecting / Cheking a Detector



- The icons are showed as many as the number of detectors available to make an exposure. Choose a desired icon to process the exposure.
- A yellow frame is indicated around the selected detector icon.

- 1 Check the connection status of detector from the relevant icon.
- 2 Choose a detector for making an exposure.



- The detector icons are showed differently depending on each detector model. Refer to <10.6.4 Detector Information Display Icon> for the information of detector icons.

6.3.1 Selecting Receptor



- You can use the **Receptor** icon instead of the detector icon.
- The number at the right bottom of the icon indicates a turn of the detector when you use multiple detectors.

The **Receptor** has four types of icon – **Table, Stand, Table Top, No Bucky**

Receptor	Description
Table	The detector is installed in the Bucky for table.
Stand	The detector is installed in the Bucky for stand.
Table Top	The detector is mounted on Bucky for table.
No Bucky	The detector is not installed in Bucky.



- The detector icon is indicated differently depending on each detector model. Refer to <10.6.4 Detector Information Display Icon> for the detailed information about detector icons.
- Refer to Detector Menu in Ecoview Service Manual for the way to change a detector icon to a receptor icon.

6.3.2 CR Mode



- Preset the **CR** mode to make AED function be deactivated to prevent the detector from acquiring images even X-ray is exposed.

In the **CR** mode, the following message is displayed on the image view of **Exposure** mode.

CR mode is selected.
You cannot take an image from detector.

- 1 Click on the **CR** mode icon. The icon status is changed.
- 2 Check if the program is turned to the **CR** mode.
- 3 Click on the detector icon or **Receptor** icon to release the **CR** mode.



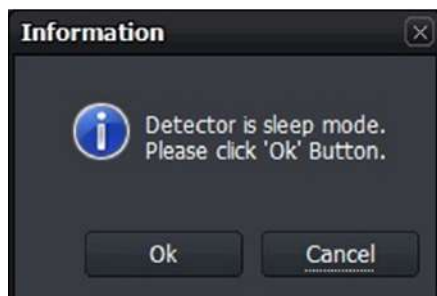
- The **CR** mode icon is not indicated unless you preset the **CR** mode to use.
- Refer to Detector Menu in Ecoview Service Manual to preset whether or not to use the **CR** mode.

6.3.3 Sleep Mode



- When the detector is switched to the **Sleep** mode, the detector icon is changed to the **Sleep** mode icon.
 - You cannot make an exposure if the **Sleep** mode is not disabled.

Disable Sleep mode



- 1 Click on the **Sleep** mode icon or press the button on the detector.
- 2 A pop-up message is displayed for asking whether to disable the **Sleep** mode or not.
- 3 Click on the **OK** button to disable the **Sleep** mode, or click on the **Cancel** button to maintain the **Sleep** mode status.



- The **Sleep** mode can be used if the following conditions are all met.
 - When using the wireless detector.
 - When the wireless detector is connected wirelessly.
 - When the **Sleep** mode is activated from **VXSetup**.
- Refer to **VIVIX Setup Operation Manual** for the detailed information about setting the **Sleep** mode.



- You cannot acquire images even the x-ray is exposed under the **Sleep** mode. Be sure to check if the **Sleep** mode is activated before making an exposure.

6.3.4 Caution for the Operation Environment

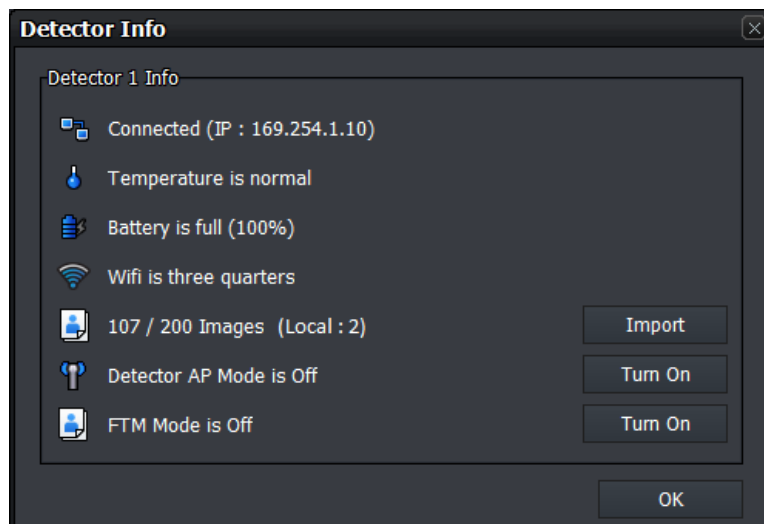


- A caution mark is shown on the detector icon when the operation environment of the detector is out of the optimal range.
- If you see this mark, take proper measures by checking the following situations.

- 1 The temperature of detector is too high or too low. (less than 5°C, more than 50°C)
- 2 The strength of wireless communication signal is too weak when the detector is operated wirelessly. (Link quality is less than 40.)
- 3 In case of the wireless detector, the battery remains less than 30%.

6.3.5 Checking the Detector Information

You can check the detector status information by clicking the right mouse button on the detector icon.



Detector connection status (Connected IP address)

Icon	Phrase	Description
	Disconnected	Detector is not connected
	Connected	Detector is connected (IP address)
	Disconnected	Detector is disconnected

The information of temperature in the detector

Icon	Phrase	Description
	Temperature error	Internal temperature of the detector is low. (Under 5℃)
	Temperature is normal	Internal temperature of the detector is low. (Normal, 5℃ ~ 50℃)
	Temperature is high	Internal temperature of the detector is high. (Above 50℃)

Battery information (Battery remains (%))

Icon	Phrase	Description
	Battery is full	Battery capacity is below 100%
	Battery is three quarters	Battery capacity is below 75%
	Battery is half	Battery capacity is below 50%
	Battery is quarter	Battery capacity is below 25%
	Battery is low	Need to charge battery

Wifi signal strength

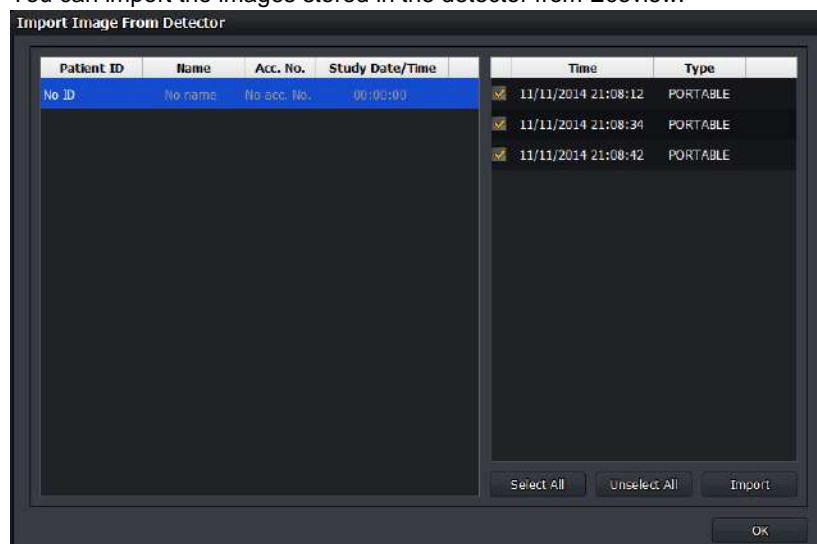
Icon	Phrase	Description
	Wifi is full	Wifi signal strength is below 100%
	Wifi is three quarters	Wifi signal strength is below 75%
	Wifi is half	Wifi signal strength is below 50%
	Wifi is quarter	Wifi signal strength is below 25%
	Wifi is low	Wifi error

Import images from the detector

When the wireless detector is used, the image is saved in the detector or PC when the following situations occur. (For certain models, the FTM image is stored inside the detector.)

- Shooting without connecting Ecoview
- Failure of image transmission during shooting
- Failure of image processing after shooting

You can import the images stored in the detector from Ecoview.



- Refer to <6.9 Importing Images from the Detector> for the detailed information.

Detector AP mode

Icon	Phrase	Description
	Detector AP Mode is On	Detector AP Mode is activated.
	Detector AP Mode is Off	Detector AP Mode is deactivated.

Turn on the detector AP mode

- 1 Click on the **Turn On** button from the **Detector Info** window.
- 2 Click on the **Yes** button. The wireless detector is rebooted automatically.
- 3 Check if the detector AP mode is turned on.



Turn the detector AP mode off

- 1 Click on the **Turn Off** button from the **Detector Info** window.
- 2 Click on the **Yes** button. The wireless detector is rebooted automatically.
- 3 Check if the detector AP mode is turned off.



- The contents about battery information, Wifi signal strength, the number of images, image import, and changing the AP Mode are applied to the wireless detector only.

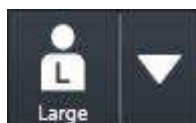


- If a detector and a PC are not connected as follows while detector AP is on, the **Turn Off** button of the AP mode is not indicated in the **Detector Info** dialog.
 - Connecting the detector to SCU with a tether interface cable.
 - Connecting SCU to PC with a LAN cable directly.

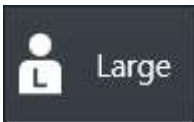


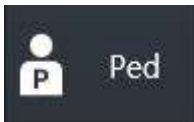


- Refer to **VIVIX Setup Operation Manual** for the detailed information about setting the AP Mode.

6.4 Selecting Patient Size



- Check the patient size to be exposed and click on the arrow button to select size options as follows.

Large	Medium	Small	Pediatric
			



- As the patient size is linked with the procedure step information, you can set the exposure condition for each patient size in advance. Refer to Step Tab in Ecoview Service Manual for the information about setting steps related to a patient size.

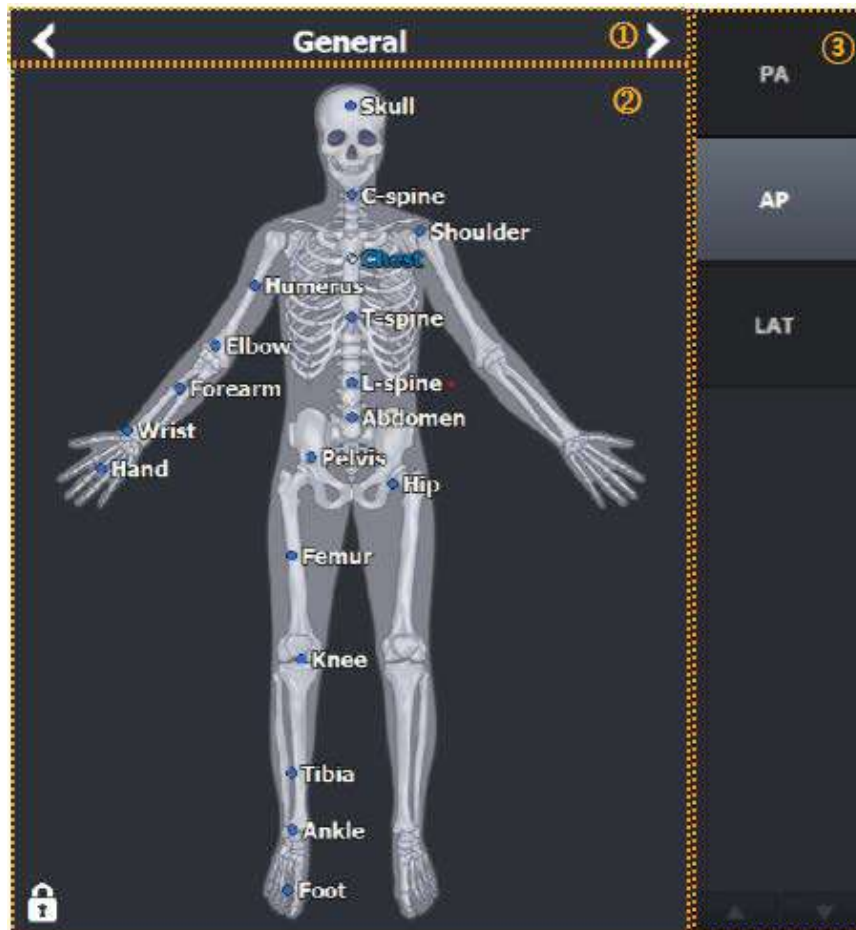


- The patient size is one of the main factors affects the exposure condition and image quality. Process the exposure by selecting a patient size matched with the exposure environment since the x-ray dose collected by the detector can be different according to the patient size.

6.5 Selecting Category and Step

You can select a category and step suitable for the exposed bodypart of a patient after checking it.

6.5.1 Composition (Image Type)



1 Procedure tab selection area

- This area is divided into Procedure & Protocol tab and Step & Bodypart tab.
- Choose a tab to be fit for the exposure purpose.

2 Category selection area

- Choose or configure the category.

3 Step selection area

- Choose the step configured for each bodypart in the selected category.

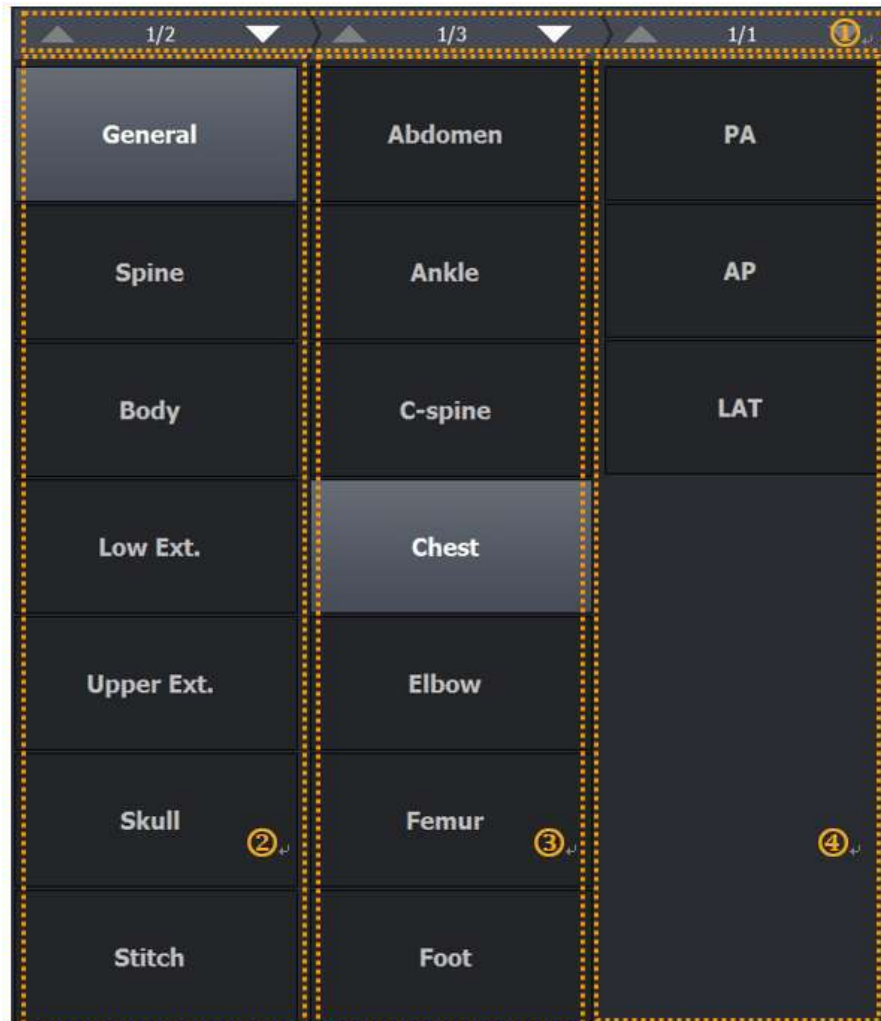
4 Exposure projection selection area

- Choose the exposure projection of each step.

6.5.2 Fixing and Releasing Shortcut

- Click on a lock at the left bottom to fix it locked  or to release it unlocked. .
- Depending on the lock icon status, you can fix **Shortcut**  or move it by dragging with the mouse button.

6.5.3 Composition (Button Type)



1 Page Up / Down

- Turn the pages of selection dialog of category, step, procedure or projection.

2 Category selection area

- Choose the category.

3 Step or procedure selection area

- Choose the step configured for each bodypart in the selected category.

4 Exposure projection selection area

- Choose the exposure projection of each step.



- The Step area has two types – **Image** and **Button**.
- The **Button** type is optimized for the touch function.
- You can change the setting from the **Category** menu of the **Procedure** tab in the **Setting** mode, or press **F8** key on the keyboard to switch the type.
- You can adjust the width of bodypart and projection area as well as the image area by dragging them with a mouse button.

6.5.4 Changing a Category



- Click on to change a category.
- Otherwise, click on the category name and select another category from the **Select Category** window to change.



- Refer to Category Tab in Ecoview Service Manual for the detailed information about registering and setting the category.

6.5.5 Order of Selecting Procedure and Step

- 1 Check the exposed bodypart of the object.
- 2 Choose the exposure setting unit matching to the exposure condition, and select **Procedure & Protocol** or **Step & Bodypart** tab.
- 3 Choose a category which the exposed bodypart is included in.
- 4 Choose the procedure of exposed bodypart or shortcut of the step on the human body image.
- 5 Choose the exposure projection item located at the right of the screen.
- 6 Check if the image view is ready to make an exposure.



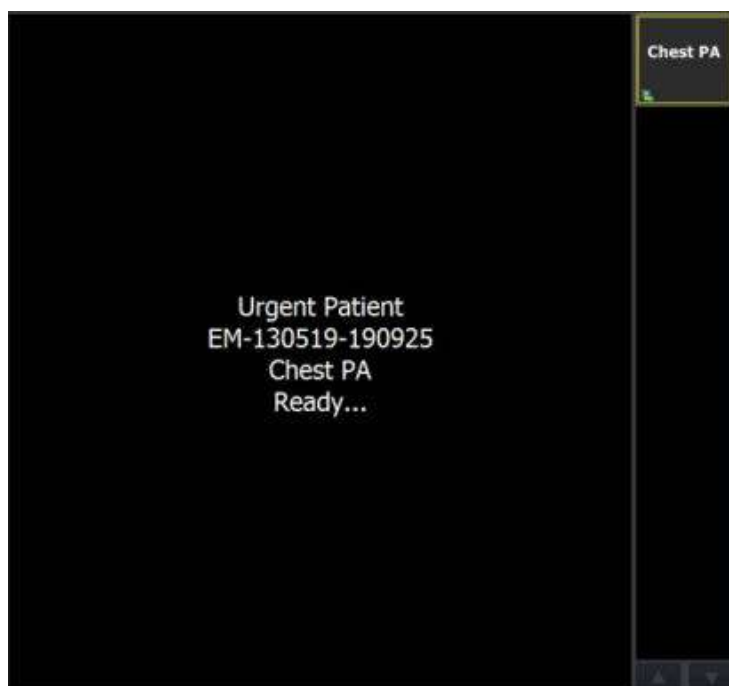
- Step is a basic unit of the exposure condition combined with the exposed bodypart, orientation and patient size information.
- Procedure is a combined unit with two or more different steps.
- Before taking images, you should preset the step or procedure for each exposure condition. Use the basic step and procedure in **Ecoview** or set the step in person.



- Refer to Step Tab in Ecoview Service Manual for the contents about setting each procedure and step.

6.5.6 Checking Preparation of Exposure

When the exposure is ready, the patient and bodypart information are displayed on the image view in the order of **Patient Name**, **Patient ID**, and **Bodypart**. Also, the icon is indicated in the thumbnail to notice that the step is selected.



6.6 Making an Exposure

Receiving image

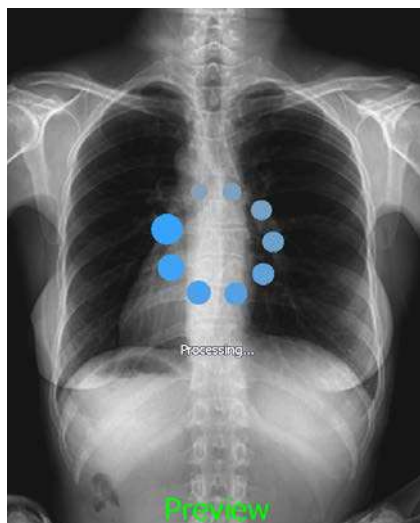


- 1 Start making an exposure by shooting X-ray to the object.
- 2 Wait until the detector receives the image.




- While the image is being received, the standby icon  is displayed and the reception amount of the image is displayed.
- The receiving time can be different depending on the detector connection status or the PC use environment.
- For certain models, the **Cancel** button will be displayed if image transmission fails or the reception is delayed. Click this button to stop the image transmission.

Processing image



- 1 The preview image displays on the screen after the image is received.
- 2 The image processing is started by reading the exposure step information immediately after the preview image displayed.
- 3 Wait until the image is processed completely.



- The standby icon  shows while the image is being processed, and the preview image displays.
- When the preview image is displayed during image processing, the preview message appears at the bottom of the image along with the processing status message.
 - The setting of font, size, and color of 'Preview' letter is the same as that of label. (Path: **Setting** → **Display** → **Information Overlay**)
- The processing speed can be different depending on the algorithm setting or the PC use environment.

Completing exposure



- Check the final image applied image processing.

6.7 Processing and Adjusting Images Additionally

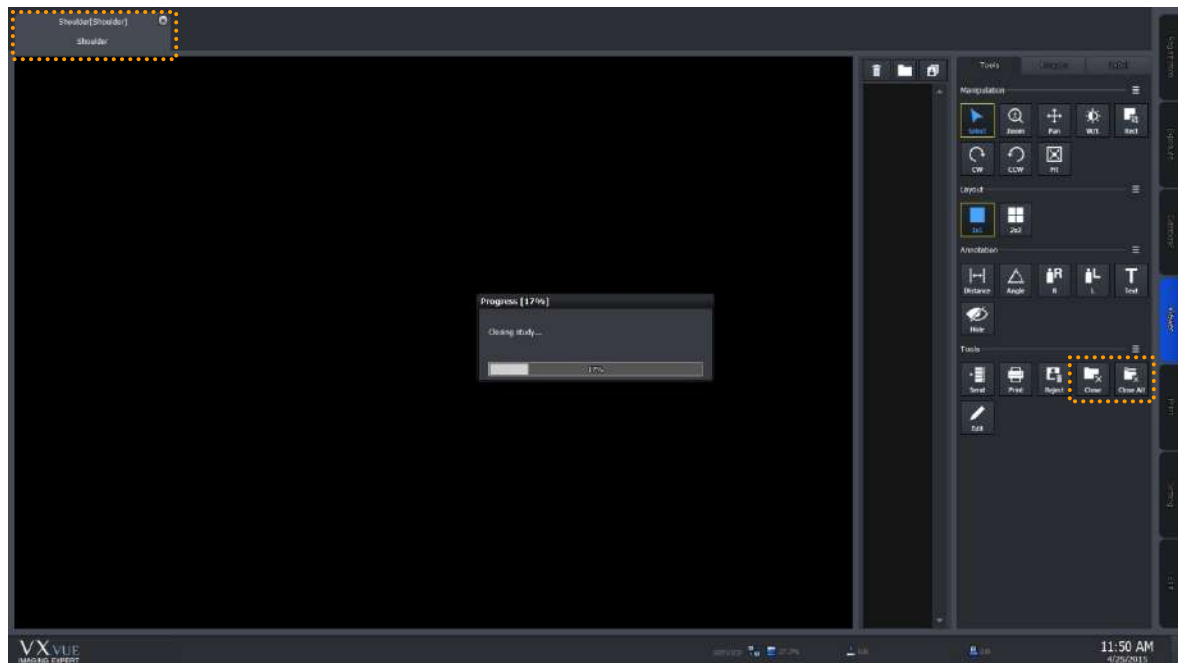
Check the acquired image when you finish making an exposure.


- You can process the images additionally using image processing tools.
- You can adjust the images using image adjustment tools.
- It is also possible to process and adjust the stored image additionally after making an exposure.



- Refer to <7 Image Processing> for the information about using the image processing and adjustment tools.
-

6.8 Closing the Exposure



- Click on  button in the **Study** tab to close the study.
 - If there are steps left for shooting images, it is possible to choose whether you close the study or not.
- Click on the **Close Study** or **Close All Studies** icon from **Tools** of the image adjustment to close the study.
- Click on the **Suspend Study** icon from **Tools** of the image adjustment to hold the study while shooting images. In this case, the step to be shot is held too.

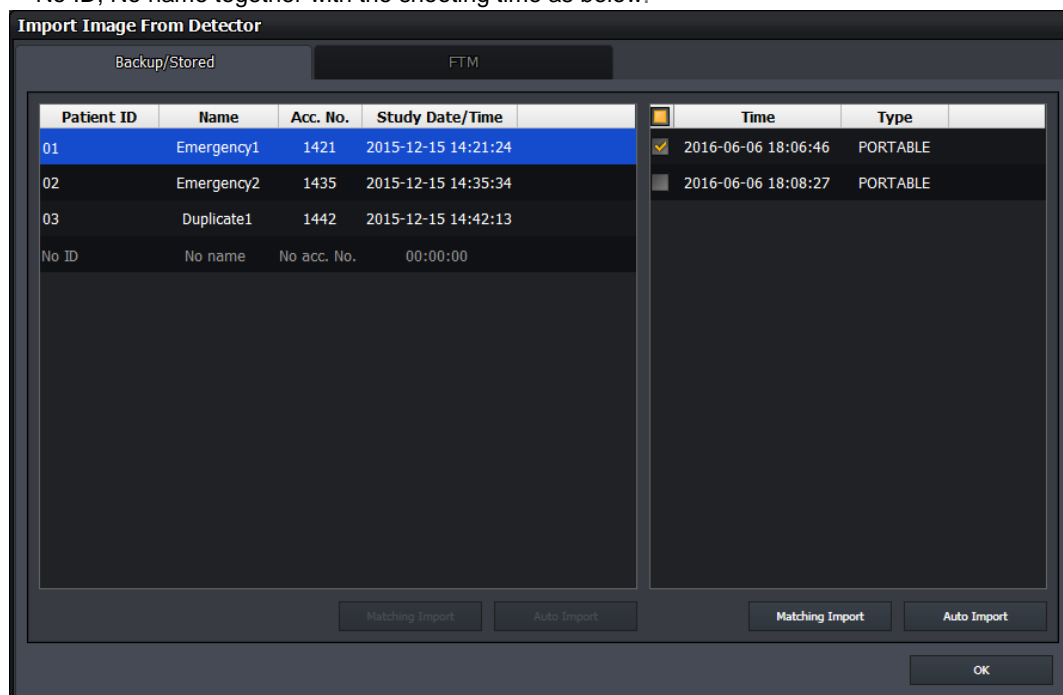


- Refer to <7.30 Closing Study> for the information on how to close the study.
- Refer to <7.31 Suspending Study> for the information on how to hold the study.

6.9 Importing Images from the Detector

6.9.1 Auto Import

- If the image is captured with the wireless detector without connecting Ecoview (Stored), or if the image transmission fails during shooting with the wireless detector (Backup), the image is saved inside the detector.
- If image processing fails after shooting (Backup - Local), the image is saved on PC.
- **Ecoview** generates studies and imports images automatically by using the study information stored in the detector.
- If there is no study information stored in the detector, or if the image is saved in the PC, it will be displayed as No ID, No name together with the shooting time as below.



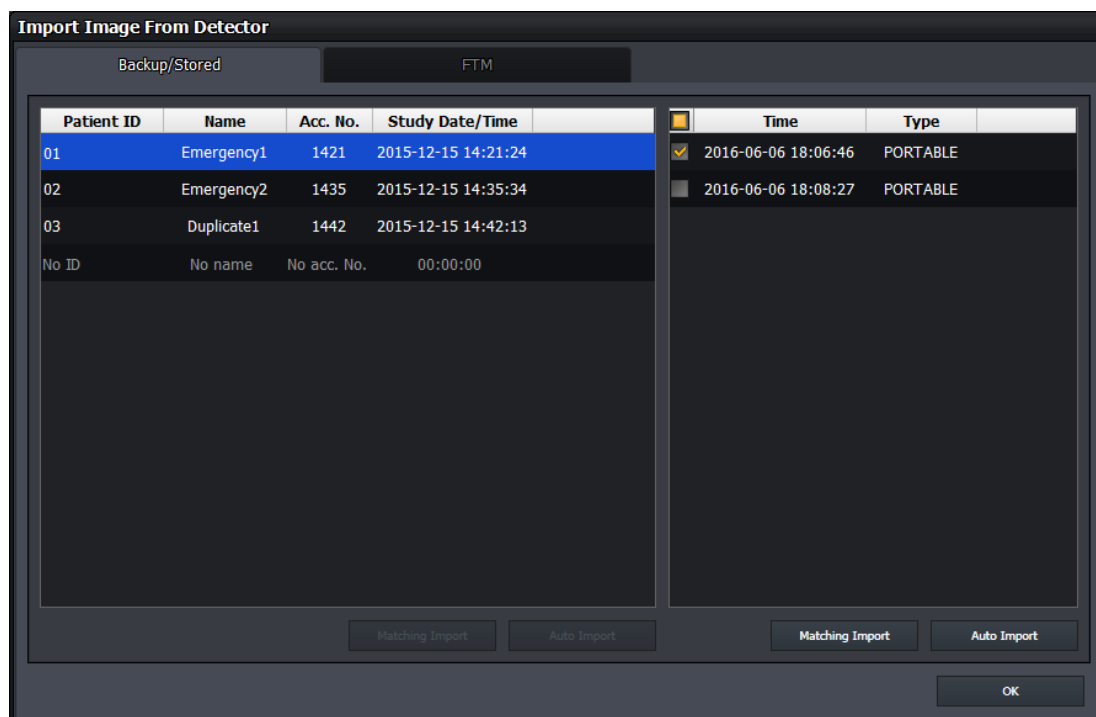
- 1 Click the **Import** button in **Detector Info** to open the **Import Image From Detector** window as above.
- 2 Choose one or more studies from the list you want to import to **Ecoview**, and click the **Auto Import** button.
 - In case you choose a single study, select images to import by checking boxes and clicking on the **Auto Import** button at the lower right.
 - If you select multiple studies, import all images by clicking the **Auto Import** button at the lower right.
 - When images are imported completely, they disappear from the list one by one.



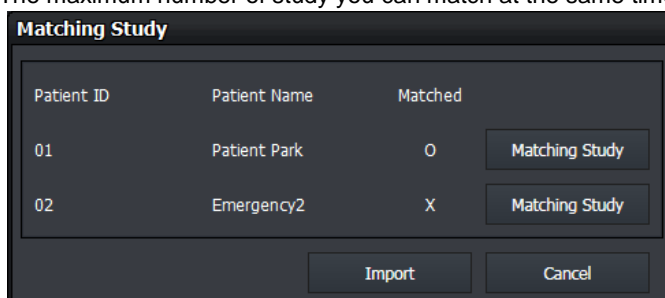
- When communication is broken while importing images, a message displays and the **Import Image From Detector** window is closed.
- In this case, check the connection status between the detector and viewer. After that, open the **Detector Info** window again to import images.
 - We recommend you connect the detector with a tether interface cable when importing images.

6.9.2 Matching Import

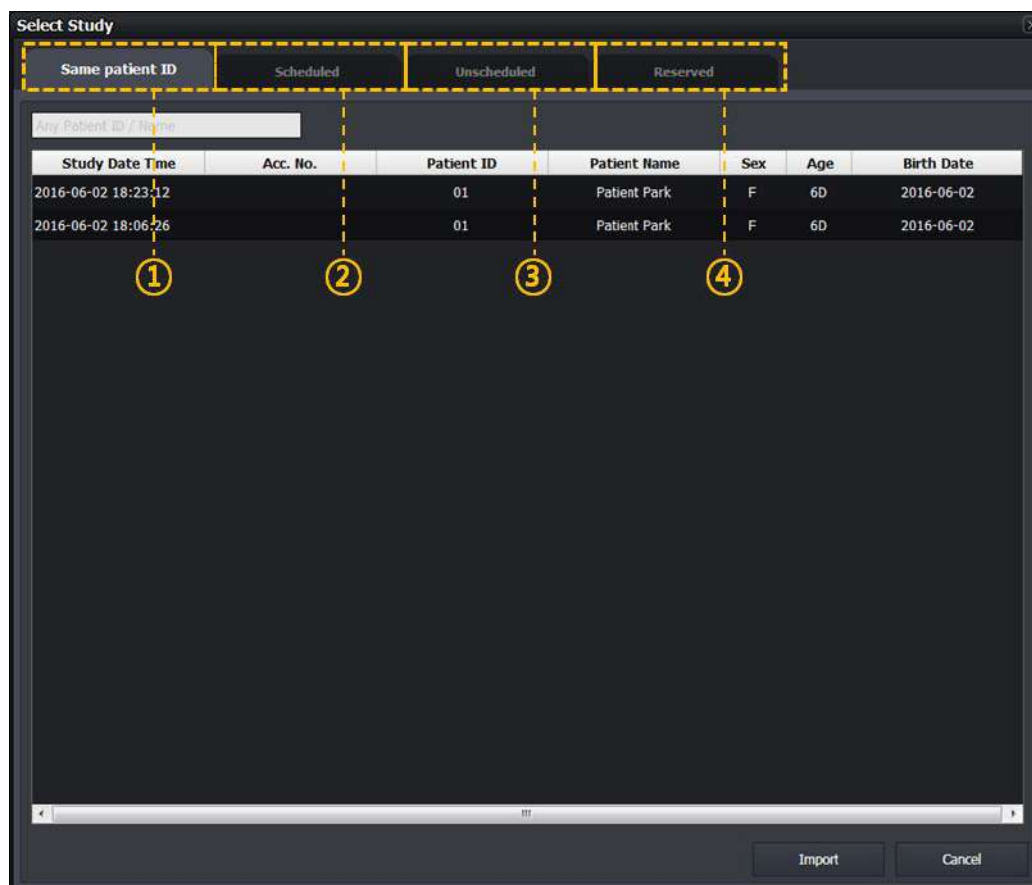
- If the image is captured with the wireless detector without connecting Ecoview (Stored), or if the image transmission fails during shooting with the wireless detector (Backup), the image is saved inside the detector.
- You can match the study information when importing images stored in the detector.
- If there is no study information stored in the detector, the image will be displayed as No ID, No name together with the shooting time as below



- 1 Click on the **Import** button in **Detector Info** to open the **Import Image From Detector** window as above.
- 2 Choose one or more studies from the list you want to import to **Ecoview**, and click on the **Matching Import** button.
 - In case you choose a single study, select images to import by checking boxes and clicking on the **Matching Import** button in the lower right. Then the selection window of target study shows for selecting the desired study.
 - In case you choose multiple studies, import all images by clicking on the **Matching Import** button in the lower left. Match each study in the **Matching Study** window to import images.
 - The maximum number of study you can match at the same time is 10.



- Click one of the four panels display on the **Select Study** window.



1 Same Patient ID panel

- If the study that you want to match now and the patient ID are stored in the same study, you can indicate and select the study on the list.

2 Scheduled panel

- The patient information imported from DICOM Worklist is indicated on the study list to be matched.
- Unlike the **Registration** mode, this panel does not provide tool buttons.

3 Unscheduled panel

- You should input the patient information to the study to be matched.
- Unlike the **Registration** mode, this panel does not provide date and time of the study as well as the study code.

4 Reserved panel

- The patient information reserved by using the Scheduled or Unscheduled menu is indicated on the study list to be matched.
- Unlike the **Registration** mode, this panel does not provide tool buttons.



- Refer to <5 How to Register Patient Prescribing Information> for more information.

- From the study list showed on the selected panel window, the study information is matched with the items selected from the study list. Click on the **Import** button to import images after the study matching is completed.

5 Select and input the desired study and click **Import** / **OK** buttons in order.

- When you match a single study, the **Import** button shows and the image is imported directly.
- When you match multiple studies, the **OK** button shows. If you click the **OK** button, an 'O' mark is indicated on the matched item of the **Matching Study** window. Check if the **Import** button is operated normally after all studies are matched.

- 6 In the **Study** tab of the shooting screen, check if the image is imported successfully after matching the study.



- Refer to <6.3.5 Checking the Detector Information> for the information of Auto Import by using detector information.

6.9.3 FTM Mode

How to Set

You can determine whether or not to use the FTM mode from **VIVIX Setup** and **Ecoview**.

How to Acquire Full Image

- 1 You can acquire full images by using the import function which can bring images from the detector.
- 2 You can also acquire full images by using the **Get Full Image** function of **Ecoview**.



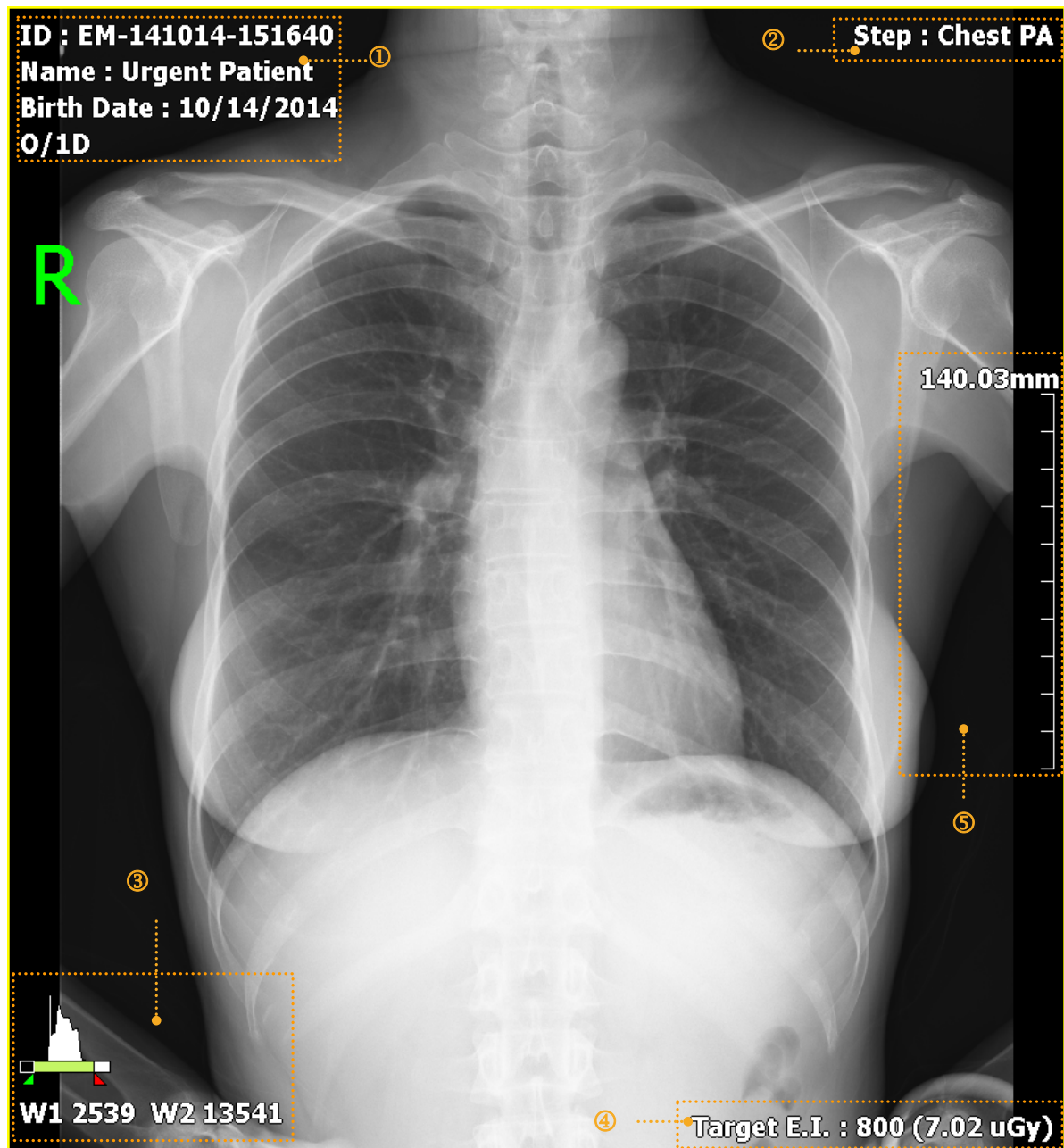
- For more information, refer to <6.9.1 Auto Import> and <7.29 Getting Full-Sized Image>.
- FTM mode is supported from F/W V1.0.3.31 for FXRD-1012N detector and F/W V1.0.0.4 for VXTD-2532E detector.

7. Image Processing

This section gives instruction on how to use the image processing tools.

- Image View
- Thumbnail Images
- Panel and Buttons
- Image Processing Tools
- Selecting Image, Adjusting Image Size, Moving Image
- Magnifying the Region of Interest
- Adjusting Brightness and Contrast of Image
- Cropping, Inverting, Rotating Image
- Using the Image Layout
- Using Annotations and Labels
- Stitching Images
- Processing the Image
- Copying the Image
- Changing Target E.I.
- Correcting Grid Lines
- Changing Order of Images
- Using Tools for Print
- Using Full View
- Suspending Study

7.1 Image View



- 1 Image Overlay at the left top
- 2 Image Overlay at the right top
- 3 Image Overlay at the left bottom
- 4 Image Overlay at the right bottom
- 5 Scale

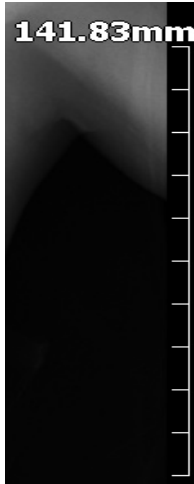
7.1.1 Image Overlay

You can check the image information by indicating it in the overlaid area. Each **Overlay** can be assigned on the top left / top right and at the bottom left / bottom right of the image as you want.



- Refer to Information Overlay Menu in Ecoview Service Manual for setting **Image Overlay**.

7.1.2 Scale



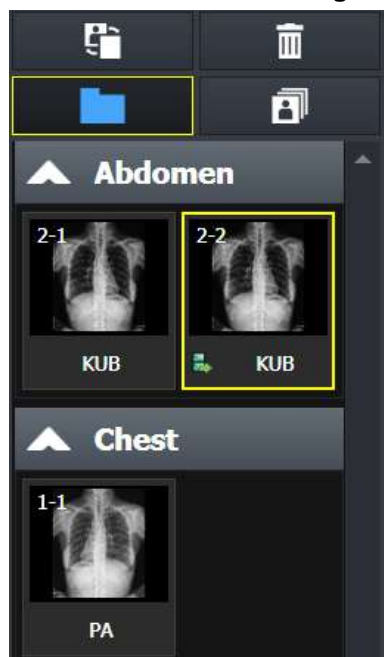
- **Scale** is the actual length of the measured image.
- You can check the actual length and size of the image by using the scale.
- You should set the changed information of actual length by using pixel spacing correction to get the correct length of the image.
- Refer to <7.7.3 Actual Size View> for more information about measuring and setting the actual length.
- You can hide the scale or change its position from the **Configuration** tab of the **View** panel in the **Setting** mode.



- The length displayed on the image is configured on the basis of the length measured from a detector surface. This means that a common difference can be occurred between the actual length and the measured one, because the actual exposure part has uniform height from the detector surface. For this reason, the length measured from Viewer should be used as a reference data only. ECORAY has no responsibility for the result caused by the measured length information.

7.2 Thumbnail Images

Check the Thumbnail Images

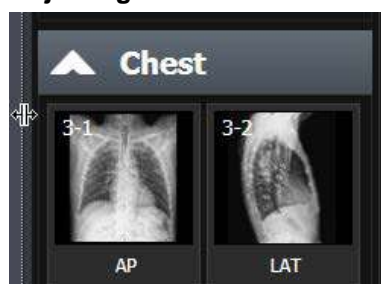


- You can view the thumbnail image without opening the related study from the **Exposure**, **Database**, and **Viewer** modes.
 - A yellow frame is displayed around the selected thumbnail.
- You can select multiple thumbnails by using the **Ctrl**, **Shift** key or **Multi-Select Thumbnail** button at the top.
 - You can use some functions with the selected thumbnail.
 - Use a mouse wheel to view a large number of thumbnail images.

Thumbnail information

- You can check step information for shooting from the thumbnail.
- You can check the series and image number of the thumbnail.
- You can check status icons of the thumbnail.

Adjusting the Width of Thumbnail



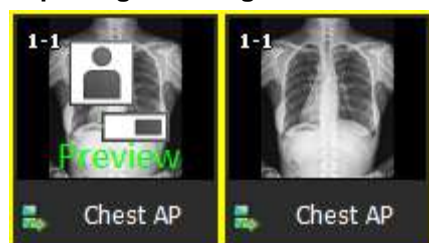
- You can adjust the width of thumbnail area by dragging a boundary between the thumbnail and image.
- Up to four thumbnail images can be included in the maximum width depending on the resolution and skin.
- The size of a thumbnail image is not changed.

Rejecting Thumbnail Images



- Choose the image to be removed and click the **Reject Thumbnail** button. Select a reason for removal when a window displays.

Importing Full Image



- You can acquire a full image by clicking the icon in the center of the preview image.
 - Click the center icon of the preview image.
 - The image import function is performed automatically from the detector.
 - Check the imported image (Full Image).



- For details on acquiring Full Image, refer to <6.9 Importing Images from the Detector> and <7.29 Getting Full-Sized Image>.
- FTM mode is supported from F/W V1.0.3.31 for FXRD-1012N detector and F/W V1.0.0.4 for VXTD-2532E detector.

Restoring Image



- The deleted image is indicated as a red color, and is available to be restored.
- 4 Double click the thumbnail of a deleted image.
- 5 Click on the **Yes** button on the following message that asking whether you will restore the image or not.
- 6 Check the restored image.



- The **Reject Thumbnail** function is supported to the **Exposure** and **Viewer** modes only.
- You can remove an image in the study unit from the **Database** mode (**Reject Study**).

Grouping Thumbnails



- Click on the **Group Thumbnail** button to group the images in the study for each body part.
- Click on the title button of group to show or hide a group.

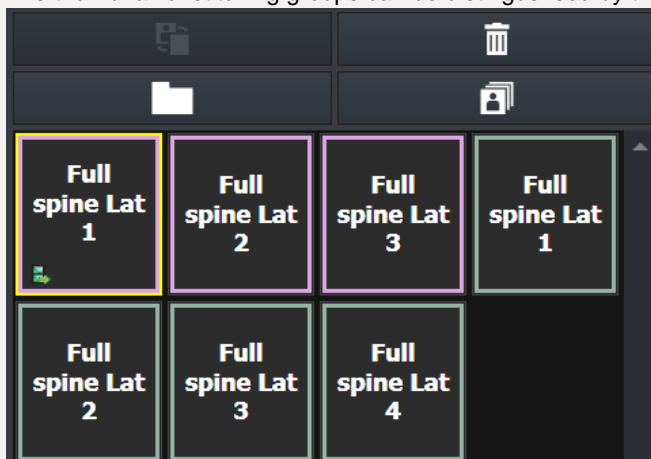
Thumbnail (General)



Thumbnail (Group)



- The thumbnail of stitching groups can be distinguished by their outline colors.

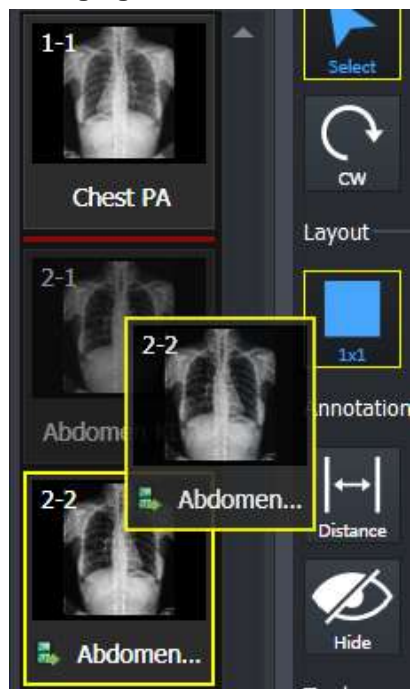


Selecting Multiple Thumbnails



- Click on this button and press the Ctrl and Shift keys to choose a number of thumbnails.
- You can also choose a number of thumbnails by clicking a thumbnail with the Ctrl and Shift keys.

Changing the order of thumbnail images



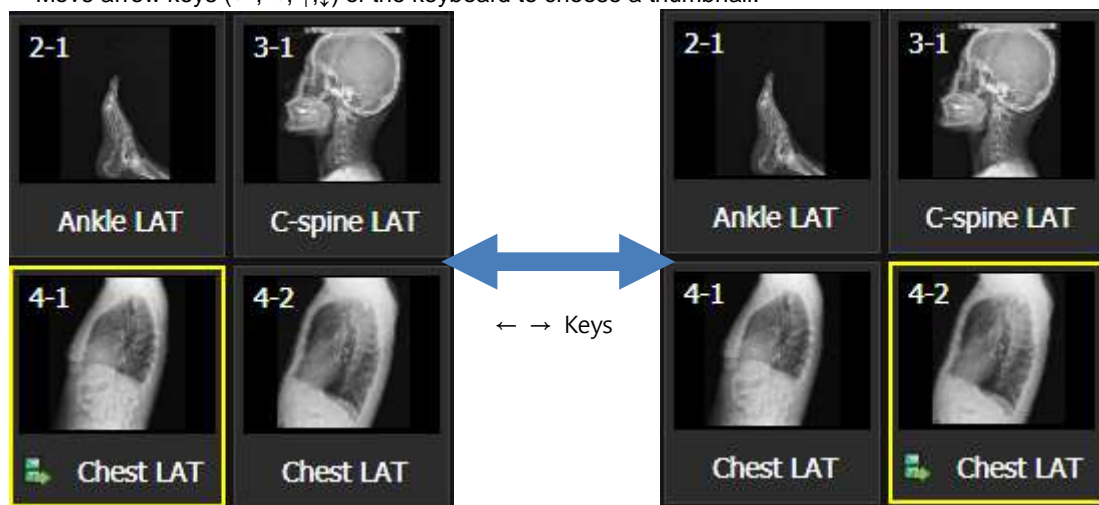
- Touch or drag the selected image with a mouse to move it to the desired position.
 - The position is indicated with a red line.
- Release a finger or a mouse button to change the order of image.

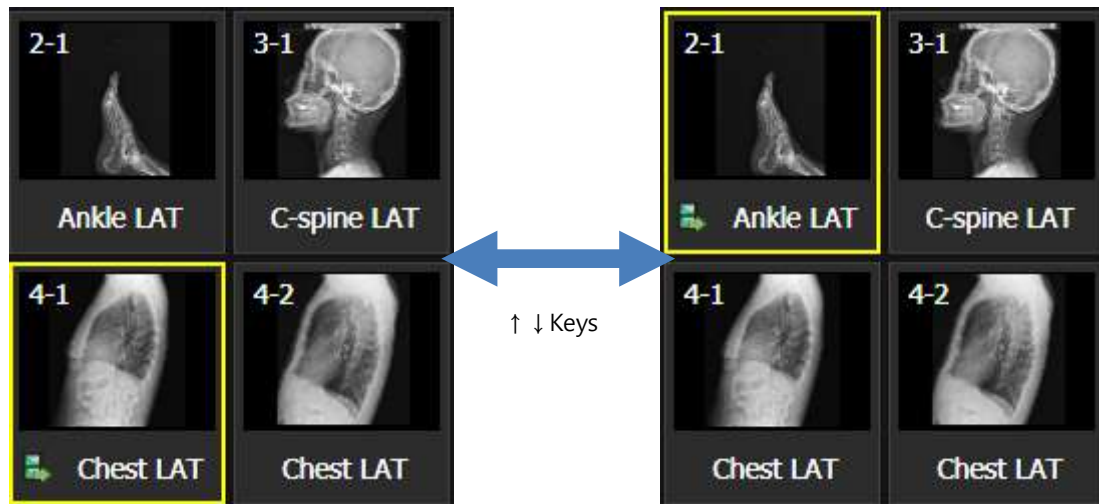


- The order change of thumbnail image is available in the same series only.
- The order of images cannot be changed if multiple thumbnails are selected.
- If the order of thumbnail image is changed, its instance number is also changed.
- Some backed-up images are limited to apply this function.

Selecting Thumbnail

- Click on the thumbnail you want to choose.
- Move arrow keys (←, →, ↑, ↓) of the keyboard to choose a thumbnail.



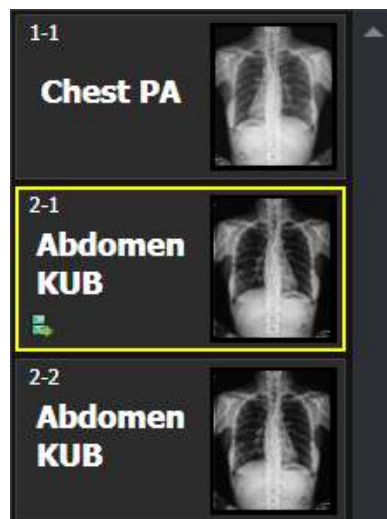


- Press **Page Up** key to choose thumbnails of the previous page.
- Press **Page Down** key to choose thumbnails of the next page.
- Press **Home** key to choose the first thumbnail on the thumbnail list.
- Press **End** key to choose the last thumbnail on the thumbnail list.
- Input a letter to choose thumbnails which bodypart name is started with it.
 - Ex) Input 'C' to choose thumbnails of 'Chest' or 'C-Spine'. Keep pressing 'C' to choose all thumbnails starting with 'C' letter in consecutive order.

Retaking Images



- Choose the image to retake and click on the **Retake Thumbnail** button. A pop-up window displays for selecting a reason to remove the image. Choose one of the reasons to remove image, and then a same step for retaking image is added.
- The added step for retaking image will be removed when you restore the rejected image.





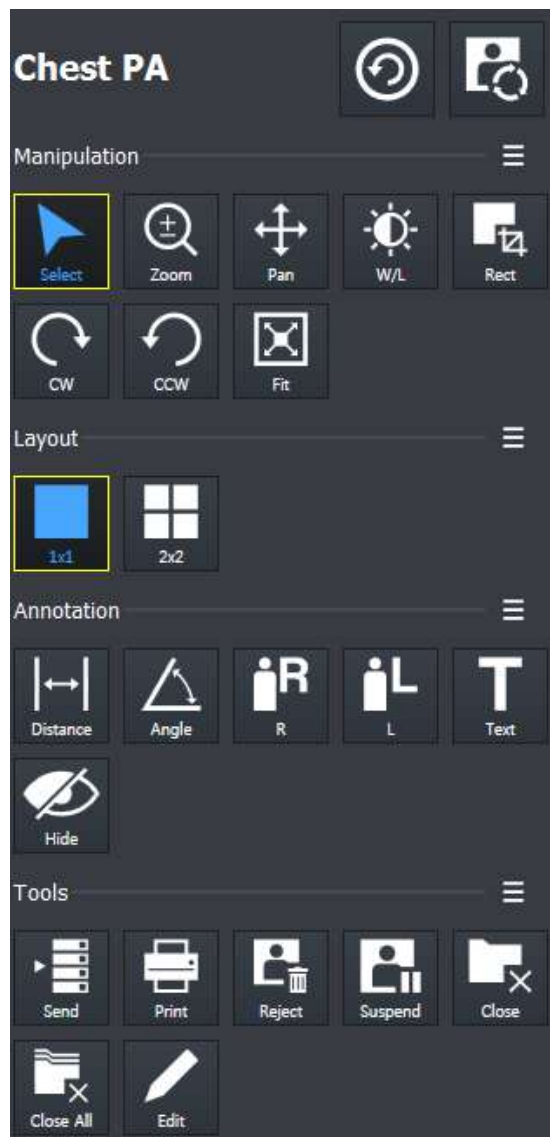
- Before you retake images, uncheck the 'Use reject reason' menu from **Setting > Study > Rejected Reason** menu to stop displaying '**Use Reject reason**'.



- You can change the tools used in the thumbnail list from the **Setting** mode. Refer to Thumbnail Setting in Ecoview Service Manual for the detailed information.

7.3 Image Processing Panel

The **Tools** panel provides tools for adjusting and controlling images. You can click on the desired tools to add them as user-defined image processing ones.



1 Step indicating area

Indicates the currently selected step. You can change the step or apply image processing.

2 Image adjustment tools area

Provides various image adjustment tools.

3 Layout tools area

Provide various view layout tools.

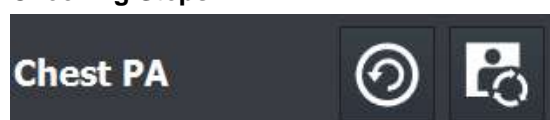
4 Annotation tools area

Provides various annotation tools.

5 Image management tools area

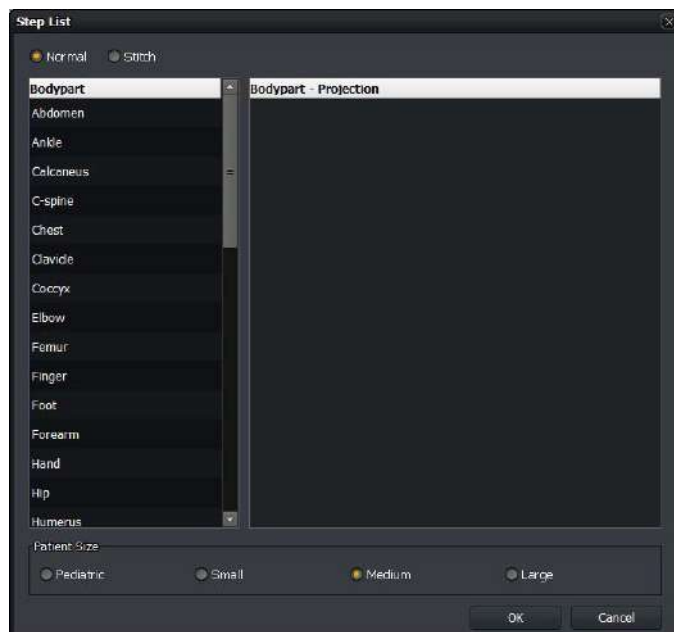
Provides various image adjustment tools. You can manage images by unifying, sending, handling, setting and deleting them.

Checking Steps



- From the displaying region of **Step**, you can check the step name of the study or image which is currently selected.
- The selected image means that it is processed by the current step information.

Changing Steps



- 1 From the displaying region of **Step**, click on the **Change Step** button to open **Step List** window.
- 2 Choose **Bodypart**, **Projection** and **Patient Size** that you want to change.
- 3 Click **OK** button to change the step information of the image. After that, The image is processed again by the changed step information.



- From the displaying region of **Step**, click on the Image Process button to open the window of default tools for image processing.



- Refer to <7.5 Using Basic Image Processing Tools> for the detailed information of using the default tools for image processing.

7.3.1 User-Adjustable Image Processing Tools

- You can check the user-defined image processing tools in the **Exposure** mode and **Viewer** mode.
- You can register or delete the image processing tools directly.
- With the tools, you can easily process the image.


Default tool buttons



- Eight (8) default buttons are provided.
 - **Select, Zoom, Pan, Window Width/Level, Crop, Rectangle, CW, CCW, Fit**
- You can register or delete the default tool buttons from the **Setting** mode.

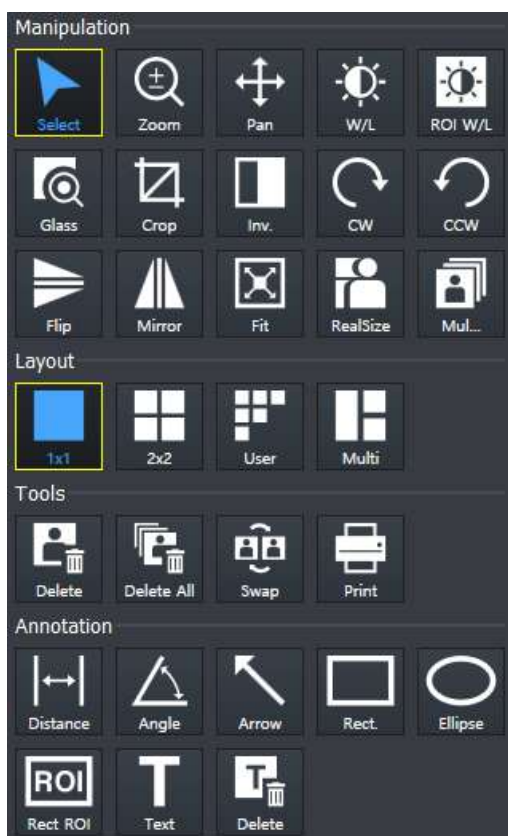
Default pop-up tool buttons



- The additional tools are popped up for two (2) seconds by clicking on  button.
- The pop-up buttons are a tool group which is unregistered as default ones.

7.3.2 Adjustment Tools for Printed Image

This area provides tools for adjusting the printed images.



1 Image adjustment tools area (Manipulation)

You can adjust printed images with the image adjustment tools.

2 Layout tools area (Layout)

You can control the number of printed images on the single screen by using the layout tools.

3 Tools area for print only (Tools)




















You can manage the printed images by using tools for print only.




4 Annotation tools area (Annotation)

You can add annotations on the printed image by using annotation tools.






7.4 Image Adjustment Tool Buttons

7.4.1 Control Tools











Icon	Name	Description
 Select	Select	The default status of a mouse cursor. You can select an image or annotations.
 Select All	Select All	Selects all images in the study.
 Zoom	Zoom	Enlarges or reduce an image.
 Pan	Pan	Moves the selected image to the desired position.
 W/L	W/L	Adjusts the brightness and contrast of an image.
 ROI W/L	ROI W/L	Adjusts the brightness and contrast of image in the selected region of interest.
 Glass	Glass	Magnifies a specific region of interest by twice.
 Crop	Crop	Crops an image into a desired shape and size.
 Ellipse	Ellipse	Crops an image into an ellipse.
 Rect	Rectangle	Crops an image into a rectangle.
 Polygon	Polygon	Crops an image into a polygon.
 Free	Free	Crop an image into a desired size of area.
 CW	CW	Rotates an image by 90° clockwise.
 CCW	CCW	Rotates an image by 90° counterclockwise.
 Line	Line	Rotates an image freely by the reference line.
 Free	Free	Rotates an image to a desired degree.
 Fit	Fit	Fits an image to the main image window size. If the image is cropped, the cropped area is fit to the window size.
 Inv.	Invert	Inverts black and white of an image.
 Flip	Flip	Flips an image vertically.






	Mirror	Flips an image from side to side.
	Real Size	Displays an image as its actual size.
	Guide	Show grid-shaped guides on screen.

7.4.2 Layout Tools















Icon	Name	Description
	1X1 Layout	Displays one image on the main image window.
	2X2 Layout	Displays four images on the main image window.
	3X3 Layout	Displays nine images on the main image window.
	User-defined	Customizes the image layout within 4x4 layout (maximum) to display on the main image window.
	Multi Layout	Displays images in the layout configured in the Setting tab.



















7.4.3 Annotation Tools

Icon	Name	Description
	Distance	Measures distance by drawing a line between two points on the image.
	Angle	Measures an acute angle by drawing angles among three points on the image.
	Add R Label	Adds R label on the image to indicate direction.
	Add L Label	Adds L label on the image to indicate direction.
	Text	Adds text to indicate information of the image.
	Hide Annotation	Hides all annotations added on the image.
	Cobb Angle	Measures cobb's angle.
	Arrow	Draws an arrow to indicate the specific region of the image.
	V.Disc.	Draws a line between the two points of the image to measure twisted part (up-and-down).
	Rectangle	Draws a rectangle over an image to indicate a specific region.




 Square	Square	Draws a square over an image to indicate a specific region.
 Circle	Circle	Draws a circle over an image to indicate a specific region.
 Ellipse	Ellipse	Draws an ellipse over an image to indicate a specific region.
 Rect ROI	Rect ROI	Assigns the region of interest of image to measure its pixel information.
 Delete	Delete Annotation	Deletes the added annotation on the image.

7.4.4 Management Tools

Icon	Name	Description
 Send	Send	Sends the image to DICOM server.
 Print	Print	Sends the image to the Print mode for DICOM printing.
 Ext.Save	Ext.Save	Saves images to the specific path such as the external device automatically or manually.
 Reject	Reject	Rejects the image.
 Retake	Retake	Adds a step to retake the rejected image.
 Close	Close Study	Saves and close the study in checking among the opened studies.
 Close All	Close All Study	Saves and close all opened studies.
 Move Img	Move Image	Moves the image to the other study.
 Edit	Edit Patient	Modifies the patient information on the image.
 Multi-S...	Multi-Send	Sends the image by selecting the DICOM object server.
 Stitch	Stitch	Connects two or more images together.
 Raw	Raw	You can view the original image (RAW) without applying detector rotation information and image processing.
 Proc.	Image Process	Processes the image variously and detailedly as well as manage the image processing parameters.
 Copy	Copy Image	Copies images.

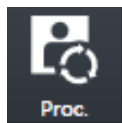
	Target E.I.	Sets Target E.I for each patient size.
	Grid Suppression (None)	Not applying the grid correction.
	Grid Suppression (Auto)	Detects and corrects grid lines automatically.
	Grid Suppression (Vertical)	Corrects vertical grid lines.
	Grid Suppression (Horizontal)	Corrects horizontal grid lines.
	None	Saves the left/right patient information indicated on the image.
	Left	Saves the left/right patient information indicated on the image.
	Right	Saves the left/right patient information indicated on the image.
	Both	Saves the left/right patient information indicated on the image.
	Union	Saves the left/right patient information indicated on the image.
	Patient Orientation	Sets patient orientation of the image.
	Up	Moves the selected original image to upward.
	Down	Moves the selected original image to downward.
	Image Pixel Spacing	Measures the actual size
	Open Full View	Displays the current image as a full view.
	Suspend Study	Suspends and closes the current study.
	Reset	Resets the image to the step setting value.
	Change Step	Changes the step of image that is currently selected.

7.4.5 Tools for Print

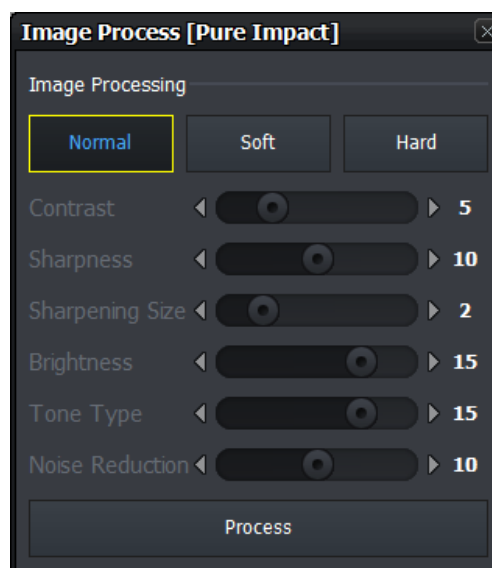
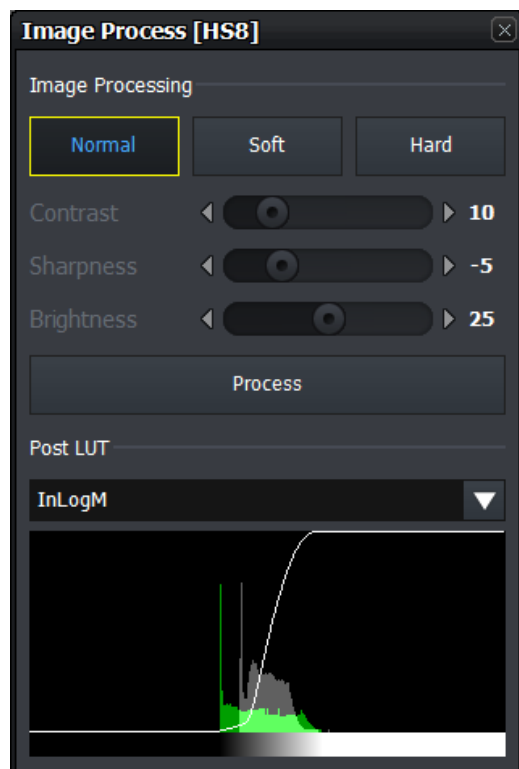
Icon	Name	Description
	Delete	Deletes the film image.
	Delete All	Deletes all film images.
	Swap	Changes the position of two film images.

7.5 Using Basic Image Processing Tools

Introductoin of the image processing tools

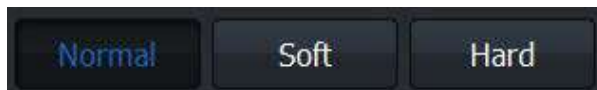


- Click this icon to open image process control screen.
- You can adjust the image processing partially.



- **Ecoview** provides the basic tools for image processing. You can secure the satisfactory image quality by using the tools.
- The basic image processing tools predefines three types of parameter for each Step. (**Normal, Soft, Hard**) You can improve the image quality by selecting Step and image processing items freely.
- The basic image processing tools provide the basic elements of image processing: Contrast, Sharpness, and Brightness. For images with PureImpact™ image processing, additional Sharpening Size, Tone Type and Noise Reduction adjustments are available. You can check the image quality while using the adjustment function directly.
- The basic image processing tool provides Post LUT information in HS8 image processed image. If the image is processed with PureImpact™, the Post LUT selection screen is not provided. You can view the image quality results by changing the Post LUT directly.

Apply image processing parameter



- **Ecoview** provides three parameters for each step. (**Normal, Soft, Hard**)
- You can select and apply the desired parameter to the image for securing the optimal image quality.

Parameter	Description
Normal	Basic image processing parameter
Soft	Processes the image more softly than Normal.
Hard	Processes the image more sharply than Normal.



- Besides **Normal**, **Soft**, **Hard**, all parameters can be configured from **XIPL.TOOL**.
- Refer to **XIPL User Manual** for the detailed information about parameter settings.

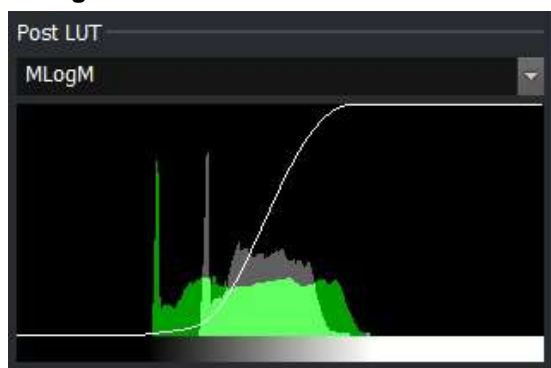
Adjusting image processing basic elements

You can check the image processing results by adjusting the basic elements of image processing.



- 1 Select an image and adjust **Contrast**, **Sharpness**, **Brightness**. For images with PureImpact™ image processing, also adjust Sharpening Size, Tone Type, and Noise Reduction.
- 2 After adjusting the image, click on the **Process** button and check the image processing result.

Change Post LUT



- You can check the image processing result while changing the **Post LUT** value.



- The Contrast, Sharpness, Brightness, Sharpening Size, Tone Type, Noise Reduction and Post LUT values you change in the Process tab are not stored in the parameters.
- Please use **XIPL.TOOL** to save the changed value to parameters.
- Refer to **XIPL User Manual** for the detailed information about the meaning of each parameter as well as setting and storing it.

7.6 Selecting Images



- You can choose the image / annotations partially (**Select**) or choose all images of a study. (**Select All**).
- When you click on this button, the active function will be deactivated and turned back to the basic state.

Use the basic optional function



- Click on the **Select** button on the **Tools** panel.
 - You can also use **Esc** key instead of the button.
- Choose the desired image from the image screen.
 - A yellow frame is displayed around the selected image.
- Choose the desired annotation on the image.
 - The selected one is displayed as a selected state.

Select by combining special keys

- Click the desired image or annotations one by one while pressing the **Ctrl** key.
 - You can choose more than two images or annotations in order.
- Click two images or annotations while pressing the **Shift** key.
 - You can choose two images as well as all the images and annotations between them.

Select all images

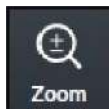
- Click on the **Select All** button on the **Tools** panel.
- Check if all images in the current study are selected.



- Only the following functions can be applied to the multi-selected images simultaneously.
 - Invert function (Invert, Mirror, Flip)
 - Rotation function (Clockwise, Counter clockwise)
 - Size control function (Fit, 1:1)
 - Add label function (Add R label, Add L label)
 - Specialized functions (Image Process, Send, Print, Stitch, Convert Raw, Reject Image)
- The other functions are applied to the single image only.
 - If you choose the other functions, the multi-selected images are cancelled and only one image will be selected automatically.

7.7 Adjusting Image Size

7.7.1 Enlarge or Reduce the Image



- You can enlarge or reduce the image.
- The maximum zoom ratio is 3200% and the minimum is 5% compared to the original image.
- Annotations in the image are also enlarged and reduced when you zoom in/out the image.

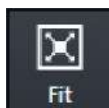
How to use

- 1 Click on the **Zoom** button on the **Tools** panel.
- 2 Move the mouse cursor to the image screen then the cursor will be changed to magic glass shape.
- 3 Press and drag the left mouse button on the image to control zooming.
 - Drag the mouse upwards to enlarge image.
 - Drag the mouse downwards to reduce image.

Close

- 1 Release the mouse button to finish zooming.

7.7.2 Fit the image to screen size

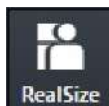


- You can fit an image to the screen size.
- Annotations in the image are also adjusted.
- The cropped image will be fit to the window.

How to use

- 1 Click on the **Fit** button on the **Tools** panel.
- 2 Check if the image is fit to the main image window.

7.7.3 Actual Size View



- Display the image size by measuring its actual size.
- This function is only applied to the image displayed on the monitor currently.
- You should preset the pixel information of a monitor and the pixel spacing correction to measure exact size of the image.

How to use

- 1 Click on the **Real Size** button on the **Tools** panel.
- 2 Check if the image is fit to the actual size of the object displayed on the monitor.
 - You can measure the object size on the monitor with a ruler.

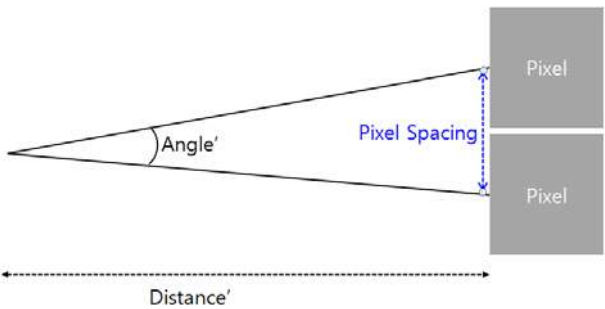
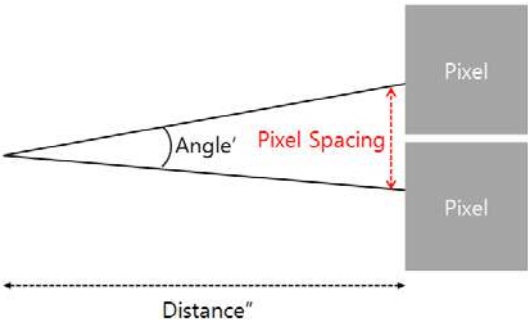


- Refer to Monitor Correction Menu in Ecoview Service Manual for setting pixel information of the monitor.
- The pixel spacing correction should be performed to display exact size of the image.
- For more information, refer to <7.26 Correcting Pixel Spacing of Image> or <11.8.2 Detector Menu>.

The principle of pixel spacing

- **Pixel Spacing:** Distance between mid points of pixels in relation to OID.
 - When a distance between an object and a detector increases, the image size gets bigger by a magnification. The pixel spacing- a scaled distance between mid points of pixels becomes longer relatively.
 - When a distance between an object and a detector reduces, the image size becomes similar to the real size of the object. The pixel spacing becomes shorter relatively.
- **Pixel Spacing Correction:** As the physical pixel pitch is fixed, measure a magnification for correcting pixel spacing as follows;
 - 1 Measure the length of an object.

2 Measure the length of an object projected on the image under the specific SID and OID conditions.

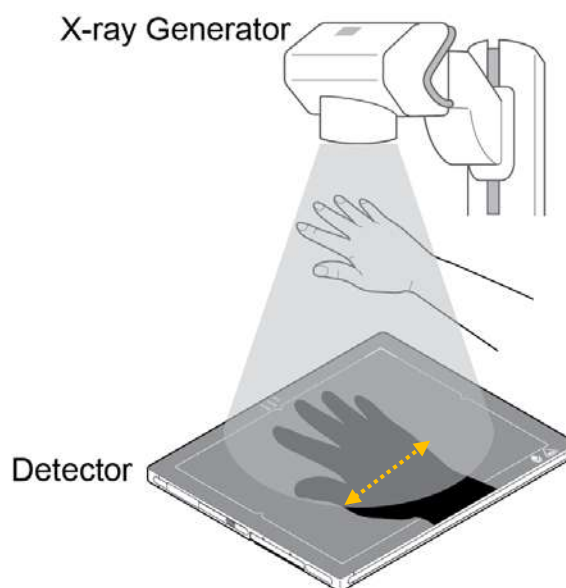
Pixel Spacing	Example
When OID gets farther away	
When OID gets closer	

Terms

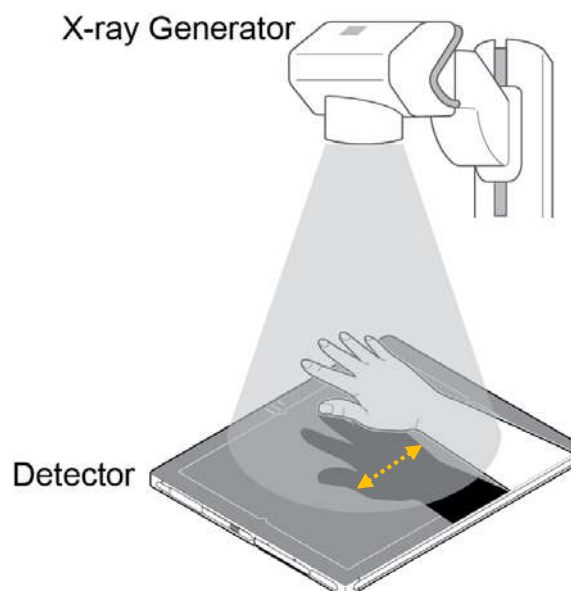
- **Real Size:** Calculate the object's real length of the desired part through the magnification calculated by pixel spacing correction, and display the image in real size.
- **Image Pixel Spacing Correction:** Applies the result of pixel spacing correction for single exposed images.
- **Detector Pixel Spacing Correction:** Applies the result of pixel spacing correction for all images acquired from each detector.
- **Magnification:** Image size of the object / Object size = $SID/(SID-OID)$

Type	Description
------	-------------

When OID gets farther away



When OID gets closer



7.8 How to Move the Image



- You can move an image to the desired position with the **Pan** button.

How to use

- 1 Click on the **Pan** button on the **Tools** panel.
- 2 Move to the main image window and check if the cursor is changed to a hand shape.
- 3 Drag the image to the desired position by holding down the left mouse button on the image.

Close

- 1 Release the mouse button to finish.

7.9 How to Magnify the Region of Interest



- You can magnify a selected region of interest with the **Magic Glass** button.
- **Annotation** on the image is also magnified.

How to use

- 1 Click on the **Magic Glass** button on the **Tools** panel.
- 2 Move to the main image window and check if the cursor shape is changed as a magnifying glass.
- 3 Press and hold the left mouse button and drag the region of interest on the image.
 - You can check the region of interest enlarged twice than the surrounding area.



Close

- 1 Release the mouse button to finish.


7.10 How to Adjust Brightness and Contrast of Image

Window Width Level



- With **W/L** button, you can adjust the brightness and contrast of the whole image.
- You can also adjust brightness and contrast of the specified image area with the **W/L** button for assigning specified area.

How to use W/L button

- 1 Click on the **W/L** button on the **Tools** panel.
- 2 Move to the main image window and check if the cursor shape is changed as .
- 3 Press the left mouse button and drag it to adjust **W/L** on the image.

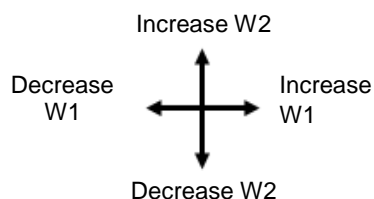
How to use W/L for specified area

- 1 Click on the **ROI W/L** button on the **Tools** panel.
- 2 Set the desired region of interest on the image and drag the left mouse button to adjust **W/L** automatically.

Close

- 1 Release the mouse button to finish.

Basic Motion of W/L



- You can use the **W/L** function by dragging the right mouse button without clicking the **W/L** icon.
- You can increase or decrease the **W/L** level by moving the mouse cursor to four ways.





- You can set the increase or decrease direction / speed of **W/L** as you want. **W/L** Refer to Display Group in Ecoview Service Manual for setting **W/L** speed and direction.

Histogram

The histogram is indicated labels which are distributed on the image by mapping them with same value.

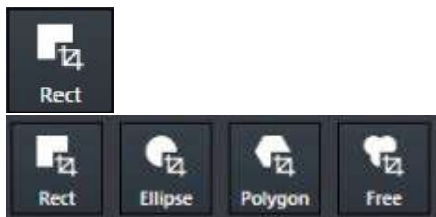


- Click on  or  and drag the mouse button to adjust **W/L**.
- You can also press and hold the right mouse button to adjust **W/L**.



- You can check the histogram by registering it to **Image Overlay**.
- Refer to Display Group in Ecoview Service Manual for the detailed information.

7.11 Cropping the Image



- Click on the **Crop** button to cut the image to desired area.
- Four (4) types of **Crop** buttons are provided.
 - Click on the **Crop** button and click on the desired crop type button.
 - Check the shutter area covered the whole image from the image view.

Select menu



- Display the pop-up menu by clicking the right mouse button in the shutter area.
- Choose either **Crop Type** or **Crop Rect Size** menu.

Crop menu

Name	Description	Image
Crop Type	Crop type	
Rectangle	Cropping image as a rectangle shape.	
Ellipse	Cropping image as an ellipse shape.	
Polygon	Cropping image as a polygon shape.	
Crop Rect Size	Cropping size (Specified rectangular shutter)	
Free Size	User defined size	
8X10	8X10	
10X12	10X12	
12X10	12X10	
11X14	11X14	
7X17	7X17	
14X17	14X17	

Check the shuttered area

- Check the shuttered area after choosing the popup menu.

Crop Type	Image
-----------	-------

Rectangle



Ellipse



Polygon



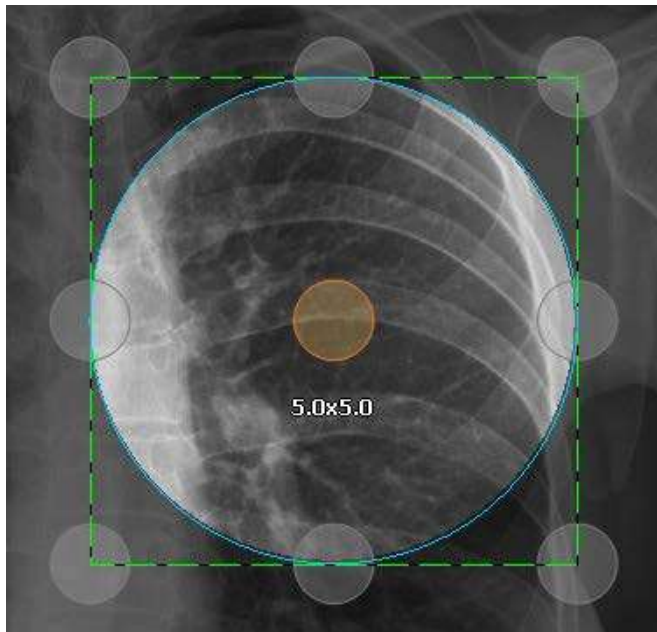
Polygon crop

- 1 Select **Polygon** and click the starting point that you want to crop.
- 2 Make the polygon shape by clicking the desired points.
- 3 Double-click the last point to finish.
 - The starting and last points are connected.



- The number of maximum appointment for making polygon crop is 10.

Adjust the shutter



- The shutter size is indicated when adjusting or moving the shutter area.
- The default unit of shutter size is inch.
- If you double-click the image area, the shutter area is adjusted by the image size. Double-click again to display the previously adjusted shutter area.



- Click and drag the green dot line with a mouse button to adjust the shutter size.
- Touch and drag a gray circle outside of the shutter area to adjust shutter size.



- Click or touch an orange circle in the shutter area and drag it to move to the desired location.

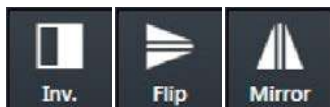
Close

- After adjusting the shutter size, click on the **Select** button to finish crop.
 - The cropped image will be fit to the main image window automatically.



- Refer to Integration Group in Ecoview Service Manual for setting a shutter size of the popup menu.

7.12 Inverting the Image



- You can invert the image as black / white, top / bottom and left/right.

How to use

- Click on the **Invert** button on the **Tools** panel and check if the black / white of an image is inverted.
- Click on the **Flip** button on the **Tools** panel and check if the top / bottom of an image is inverted.
- Click on the **Mirror** button on the **Tools** panel and check if the left / right of an image is inverted.



7.13 Rotating the Image

7.13.1 Rotating the Image in the Specified Angle



- You can rotate the image as clockwise or counter-clockwise way with **CW** and **CCW** buttons.

How to use

- Click on the **CW** button in the **Tools** panel and check if the image is turned clockwise by 90°.
- Click on the **CCW** button in the **Tools** panel and check if the image is turned counter-clockwise by 90°.



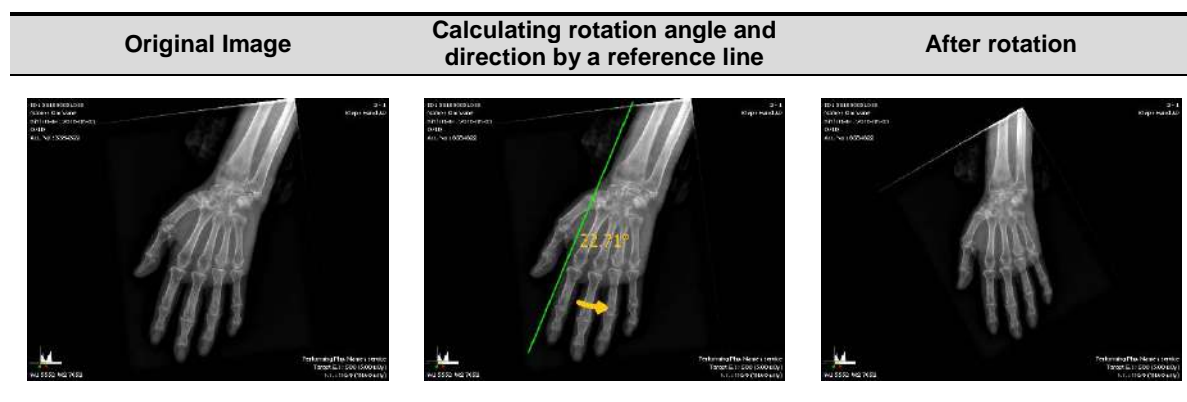
7.13.2 Free Rotation



- Use the free rotation button to rotate the image freely or by the reference line.
 - The shutter area and annotation are rotated with the image.

Rotate by Line






- Click on the **Line** button on **Tools** panel.
- Draw a reference line by clicking and dragging the desired point. After that, adjust direction and degree to rotate the image.
- Release the mouse button and check if the image is rotated by the appointed direction and degree.



Rotate freely

- Click on the **Free** button on **Tools** panel.
- Click and drag the desired point in clockwise or in counter-clockwise to adjust degree to rotate the image.
 - The rotation degree is based on a clockwise direction.

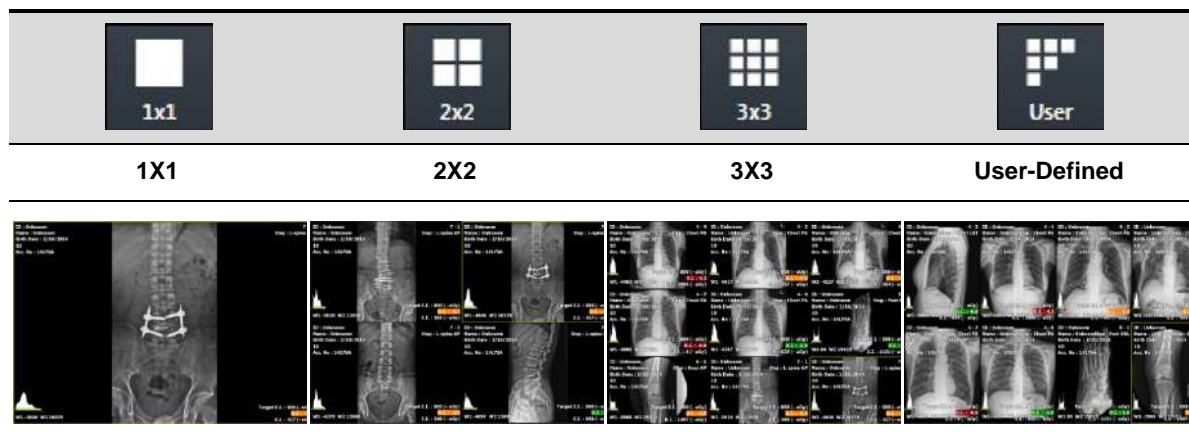
- 6 When the degree is indicated as you want, release the mouse button and check if the image is rotated.

Original Image	Calculating rotation angle by dragging a mouse button	After rotation
		
<div style="display: flex; align-items: center;">  <div> <ul style="list-style-type: none"> Click on the Reset button  to return the rotating image to its original one. </div> </div>		

7.14 Using Image Layout

7.14.1 Using Pre-defined Layout

- Choose the desired layout button in the **Tools** panel.
- Check if the selected layout is applied to the image.



Set user-defined layout



- 1 Click on the **User Layout** button in the **Tools** panel and choose the desired layout.
 - When you move the mouse cursor, the defined layout area is showed brightly.
- 2 Check the changed layout.

7.14.2 Using Multi Layout

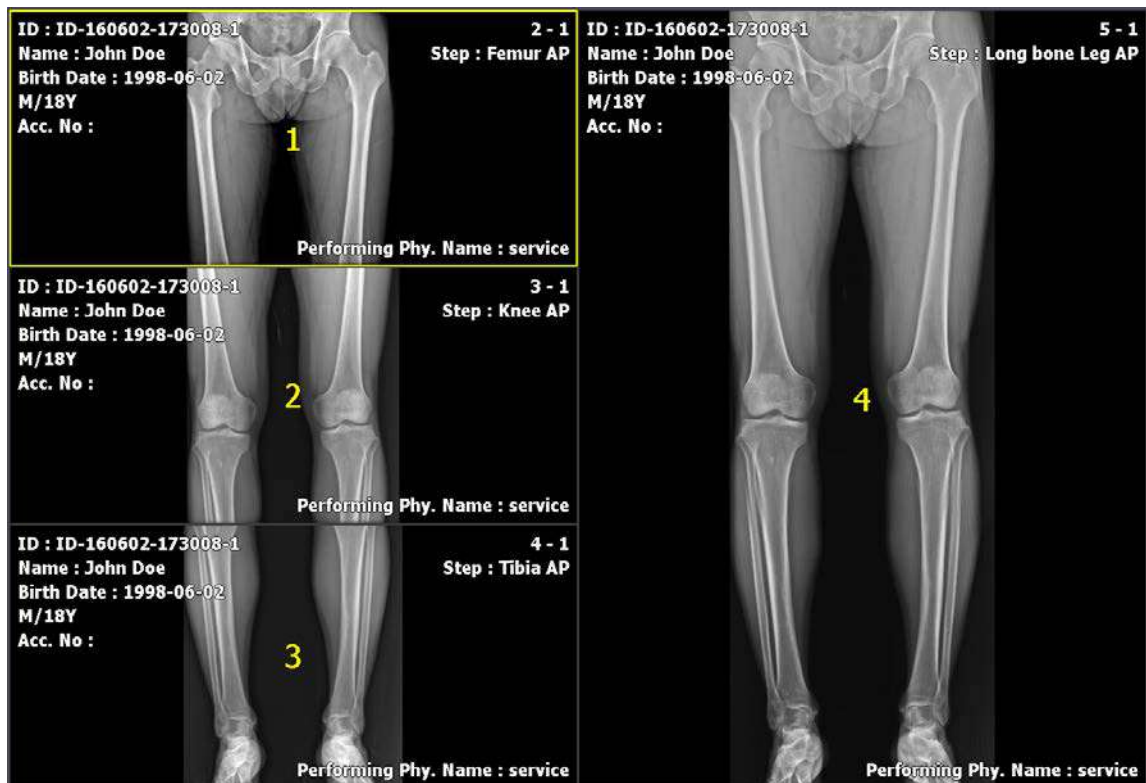
- 1 Click on the **Multi Layout** button to select a desired layout.
- 2 Check that the selected layout is applied to the image normally.



Checking the order of indicating images



- You can check in what order are the images arranged in the configured layout.
- 1 Click on the **Multi Layout** button.
 - 2 Click on the **Layout Order** button among the pop-up buttons.
 - 3 Check the order of images in the configured layout.


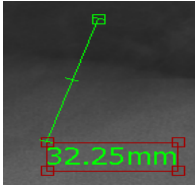





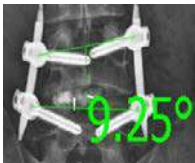




- Refer to Layout Menu in Ecoview Service Manual for the way of editing multi-layout.

7.15 Using Annotation for Measurement



- You can measure distance, angle and pixel of the image by using the measuring annotation.
- When you add the annotation, the measured value and unit are calculated automatically.

Button	Sample Image
	
	
	
	
	

How to measure distance

- 1 Click on the **Distance** button in the **Tools** panel and check if the cursor shape is changed to a ruler.
- 2 Hold down the left mouse button at the start point and drag to draw a line.
- 3 Release the mouse button and measure the calculated distance.

How to measure angle

- 1 Click on the **Angle** button in the **Tools** panel and check if the cursor shape is changed to a protractor.
- 2 Hold down the left mouse button at the start point and drag it to draw a line. Then release the button.
- 3 Set the start point as a standard immediately, and click the mouse button at the predicted angle point.
- 4 Check the calculated measurement angle.

How to measure Cobb angle

- 1 Click on the **Cobb Angle** button in the **Tools** panel.
- 2 Click four points. The two points are made one line.
- 3 Click the left mouse button on the two reference points to check if a circle is indicated.

- 4 Click one of the two points which will be a line and check if a square is indicated.
- 5 Click the other point and check if an angle between the two lines is indicated.

How to measure vertical difference

- 1 Click on the **Vertical Discrepancy** button in the **Tools** panel.
- 2 Click on the starting point.
- 3 Check the degree of twist (up-and-down) by moving a mouse to the target point in real time.
- 4 Click on the target point to check if the mark of measurement value indicating the twisted part is fixed between the two points.

How to measure ROI (Region of Interest)

- 1 Click on the **Rect ROI** button in the **Tools** panel and check if the cursor shape is changed to a rectangle.
- 2 Hold down the left mouse button at the start point and drag to draw a rectangle.
- 3 Release the mouse button and check the calculated pixel information.
 - The unit of the pixel information is **Gray Value**.
 - The minimum, maximum, average value and standard deviation are indicated within the configured area.

How to measure annotation

- 1 Click on the **Select** button and select the measurement annotation to be adjusted.
 - You can move both the measurement annotation and calculation value if you select a line and drag it.
 - You can change the shape of annotation and measurement value if you select a dot and drag it.
 - You can select the position of measurement value and drag it to move its position.

How to measure the measured annotation

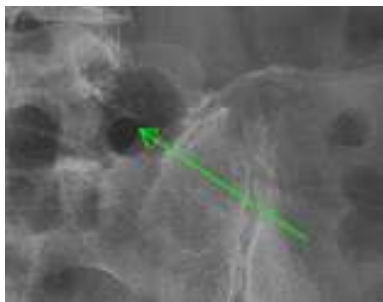
- 1 Click on the **Select** button and select the measurement annotation to be removed.
- 2 Delete the selected measurement annotation by clicking on the **Delete** key or **Delete Annotation** button.

7.16 Using Figure Annotations



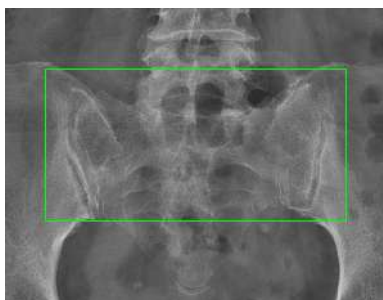
- You can draw an arrow, a square and an ellipse by using the figure annotations.

How to draw an arrow



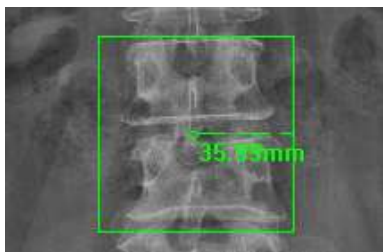
- 1 Click on the arrow button in the Tools panel and check if the mouse cursor is changed to an arrow.
- 2 Hold down the left mouse button at the start point and drag it to draw an arrow.

How to draw a rectangle



- 1 Click on the **Rect** button on the **Tools** panel and check if the mouse cursor is changed to a rectangle.
- 2 Hold down the left mouse button at the start point and drag it to draw a rectangle diagonally.

How to draw a square



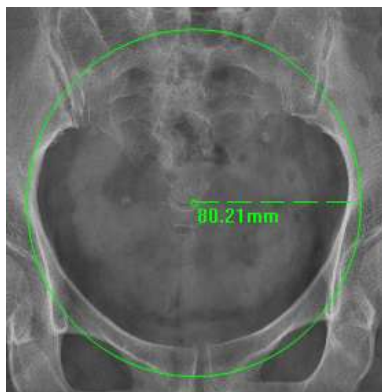
- 1 Click on the **Square** button on the **Tools** panel and check if the mouse cursor is changed to a square.
- 2 Hold down the left mouse button at the start point and drag it to draw a square diagonally.

How to draw an ellipse



- 1 Click on the **Ellipse** button on the **Tools** panel and check if the mouse cursor is changed to an ellipse.
- 2 Hold down the left mouse button at the start point and drag it to draw an ellipse diagonally.

How to draw a full circle



- 1 Click on the **Circle** button on the **Tools** panel and check if the mouse cursor is changed to a circle.
- 2 Hold down the left mouse button at the start point and drag it to draw a circle diagonally.

How to adjust figure annotations

- 1 Click on the **Select** button and choose the figure annotation to be adjusted.
- 2 You can move the figure annotation if you select a line and drag it.
- 3 You can select and drag a dot to change the shape/size of the figure.

How to delete figure annotations

- 1 Click on the **Select** button and choose the figure annotation to delete.
- 2 Press the **Delete** key on the keyboard or click on the **Delete Annotation** button to delete the figure annotation.

7.17 Using Text Annotation



- You can annotate the image by using the text annotation function.

How to add text annotation



- Click on the **Text** button in the **Tools** panel and then the **Text Annotation** window is popped up.
- You can also click the desired text in the **Pre-Defined Text** area.
- Click left / right buttons to use various annotations.
 - Marker, Position, Projection, Measure, Time, Others**
- Move to the **Label** panel to use **Text Annotation**.
- Input text in the **Free Text** area and click on the **Add** button to add the entered annotations.
- Click on the **Add** button to activate the entered annotation on a mouse pointer, and click the pointer to a desired position to annotate the image.

How to adjust text annotation

- Click on the **Select** button and choose a text annotation to adjust from the image view.
 - Select and drag a line to move the text annotation.
 - Select and drag a point to change the text box size.
 - Double click the text box to edit texts.

How to delete text annotation

- Click on the **Select** button and choose a text annotation to remove from the image view.
- Press the **Delete** key on the keyboard or click on the **Delete Annotation** button to delete the text annotation.

How to adjust the font size of text annotation

If you want to set the default size of text annotation, go to **Setting** → **Display** → **Information Overlay**.

- Click on the **Select** button and choose text annotation that you want to adjust its font size from the image view.
- Click and drag a point to adjust the box size, then the font size is also adjusted to fit the box.

7.18 Using Other Annotation Functions



- You can hide or show all annotations.
- You can delete all or partial annotations.
- You can select and apply all or partial annotations.

How to hide or show annotation

- 1 Click on the **Hide Annotation** button in the **Tools** panel.
 - You can hide or show all annotations.
 - The color of **Hide Annotation** button is changed according to whether the annotation sign is indicated or not.

How to delete annotation

- 1 Click on the **Select** button on the **Tools** panel and select the annotation. Then click on the **Delete Annotation** button.
 - You can delete the selected annotation.
 - You can select and delete more than two annotations by dragging them with the mouse button.

How to cancel to draw annotation

- 1 Press the **Esc** key to cancel the mode of drawing annotation.
 - If each annotation button is pressed, it means that the mode of drawing annotation is activated.
 - Only the annotations related to figures and measurement can be drawn.
 - If the mode of drawing annotation is canceled, the pointer is moved to the **Select** button automatically.

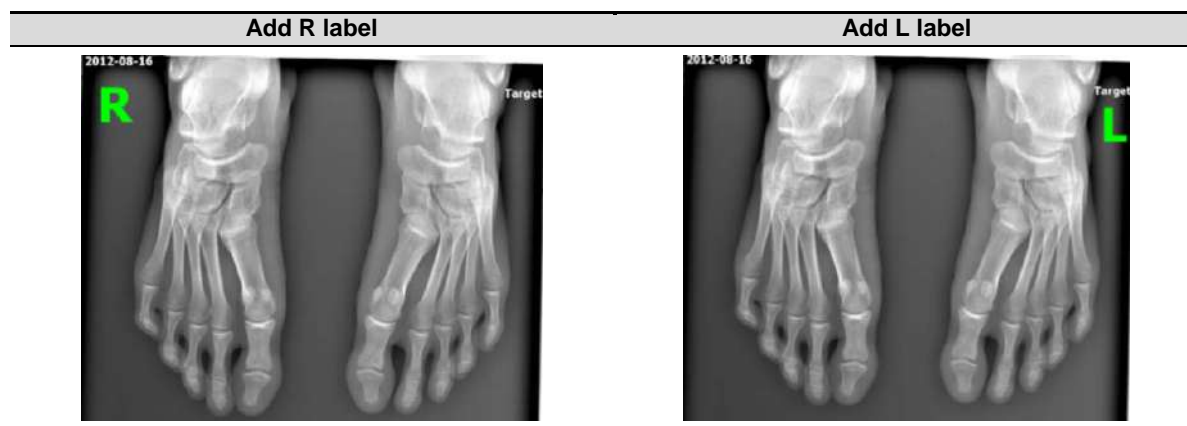
7.19 Adding the Label

7.19.1 Adding R / L Labels

How to add labels by using annotation buttons of R / L label in the Tools panel



- 1 Click on the **R** label button.
- 2 Check if the **R** label is added to the left top of image.
- 3 Click on the **L** label button.
- 4 Check if the **L** label is added to the right top of image.



How to move a label

- 1 Click on the **Select** button.
- 2 Click and hold the label with the left mouse button and drag it to the desired position.
 - If you add a new label again, the previous label is disappeared.

How to delete a label

- 1 Click on the **Select** button.
- 2 Click the label and press the **Delete** key on the keyboard.

How to adjust the font size of a label

- 1 Click on the **Select** button and click a label.
- 2 Click and drag a point to adjust the box size, then the font size is also adjusted to fit the box.

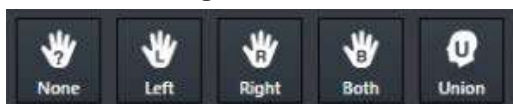


- Refer to Information Overlay Menu in Ecoview Service Manual for the information about setting the font, color, and default size of a label.
- If you move the label outside of the image area, it is not indicated when sending, printing, or exporting the image. Therefore, it is necessary to insert the label within the image area.

7.19.2 Adding Left / Right Information (Image Laterality)

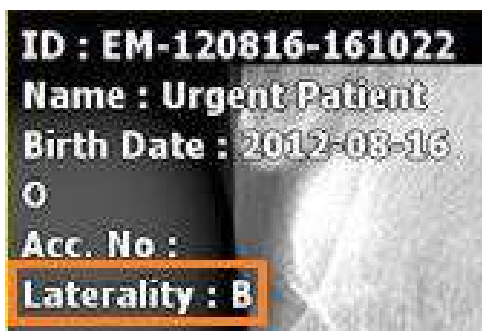
Configure and save the left / right information of the image.

Save the left / right information of the image



- 1 Click on the **Laterality** button in the **Tools** panel.
- 2 Check the image and click on the desired button to be saved.

Check the left / right information of the image



- 1 Register and check the left/right information of the image to **Image Overlay**.



- The left / right image information should be stored to the **DICOM** image. One of the four values - **U** (Unpaired), **L** (Left), **R** (Right), **B** (Both) is stored to the **Image Laterality** tag (0020, 0062). Please use the DICOM Viewer to check the tag information.

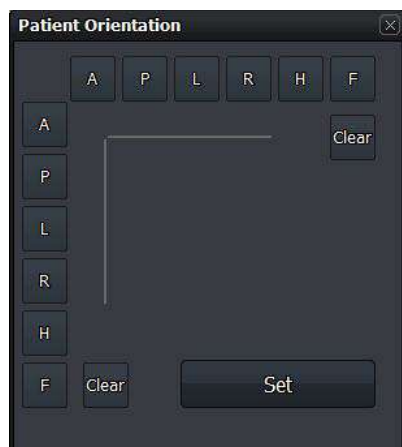


- Refer to Display Group in Ecoview Service Manual for more information about registering **Image Overlay**.

7.19.3 Adding Patient Orientation Info



- Add the orientation information of patient on the image.



- 1 Click on the **Patient Orientation** button to display the **Patient Orientation** window.
- 2 Set the patient orientation by clicking buttons at the top and at the left of the panel. Click on the **Clear** button to delete the patient orientation.
- 3 Click on the **Set** button at the bottom of the panel.
- 4 Check if the configured orientation information is displayed at the top/bottom/left/right of the image. The information is indicated as [] (Square bracket) each.



- **A-P, R-L** and **H-F** are sets of orientation information which is symmetrical to each other.
- If you choose one orientation from the set, the rests are selected to the opposite site automatically.



- The patient orientation information should be stored to the **DICOM** image. One of the five values - **A** (Anterior), **P** (Posterior), **R** (Right), **L** (Left), **H** (Head), **F** (Foot) is stored to the **Patient Orientation** tag (0020, 0020). Please use the DICOM Viewer to check the tag information.

7.20 Stitching Images



- You can select and connect two or more images together.
- You can stitch up to 6 images.



- Refer to <9.1 Stitching Images> for the detailed information about stitching.

7.21 Processing the Image



- Click on the **Image Process** button to call out the image processing tools - **XIPL.TOOL**.
- After processing images from **XIPL.TOOL**, you can update **Step** information of the selected image.
- This item provides more various functions than those of the **Process** tab.

How to use

- 1 Choose the image and click on the **Image Process** button to call out **XIPL.TOOL**.



- 2 Process the selected image as you want from.
- 3 Check the processing result and save the image processing parameters. After that, close **XIPL.TOOL**.
- 4 Choose the **Step** information of the selected image from **Ecoview** again and check the image processing results.

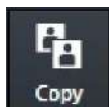


- We recommend you to understand this manual and **XIPL User Manual** fully before trying to process images. If you process images without understanding the aboves correctly, it may affect the image quality.
- Log on to **Ecoview** with a service account or an account with administrative rights to use **XIPL.TOOL** through the **Image Process** menu.



- **HS8** and **PureImpact™** image processing algorithm are applied to **XIPL.TOOL**.
- Refer to **XIPL User Manual** for the detailed information about using and setting **XIPL.TOOL**.

7.22 Copying the Image



- Copy a selected image to the last position of series where the selected image is included.
- Check if the copied image is added to the last position of thumbnail.



- When the image is copied, the created time (content time) of image is changed to the copied time.

Original Image	Copy Image



- The image can be copied differently according to the setting of image copy options. Refer to Tool Group in Ecoview Service Manual for the information about the options.

7.23 Changing Target E.I.



- You can change the **Target E.I.** value configured in the step of selected image for each patient size.

Example of changing procedures

Step	Description	Figure
1	Choose a step where you will change its target E.I. and take images.	-
2	Check exposure index of the selected image.	
3	Click on the Tools > Target E.I. button to display the Target E.I. dialogue.	
4	Check the Step information and each exposure index of the selected image. <ul style="list-style-type: none"> Csl and Gadox values are indicated by the detector type. 	
5	Click on the Save button. The current E.I. value will be set as Target E.I. value.	
6	Check the information of exposure index again.	

Target E.I. dialog

- This dialog indicates **Step** and **E.I.** value of the selected image.
- Click on the **Save** button to set the current **E.I.** value as the **Target E.I.** value.

- You can check the **Target E.I.** value for each patient size.
- If you click on the **Save** button, **Target E.I.** value of the checking items will be changed only.



- Log on to **Ecoview** with a service account or an account with administrative rights to change the **Target E.I.** value.



- Refer to <9.5 Exposure Index> for the detailed information about the exposure index.

7.24 Correcting Grid Lines



- This function detects and corrects grid lines on the image automatically or manually.

- When you select an image, you can check the state of **Grid Suppression** button applied to the image.
- If you change **Grid Suppression** button to another, the related function is applied to the image.



- If **HS1**, **HS2**, **HS4** algorithms are applied to the image already, the **Grid Suppression** icon becomes deactivated. In this case, process the image with **HS8** or **PureImpact™** algorithm and then use the **Grid Suppression** function.

Type

Button name	Description
None	Not applying the grid correction function. (No Suppression)
Auto	Detect and correct grid lines automatically. (Default)
Manual V	Detect the vertical grid lines.
Manual H	Detect the horizontal grid lines.



- Grid lines are corrected from **XIPL** and the result is returned to **Ecoview**. Therefore, you can directly set the processing standards of **Grid Suppression** from **XIPL** to improve image quality. Refer to **XIPL User Manual** for the detailed information about **Grid Suppression** and its setting method.



- Some specific patterns or noise on the image can be recognized and processed as grid lines.
- The sharpness of image can be lowered because of the grid line correction.

7.25 Changing the Order of Images



- Change the order of images.

- 1 Select an image or thumbnail and click on the **Sort Up** button.
- 2 Check if the order of selected image is change to the next to before one.
- 3 Select an image or thumbnail and click on the **Sort Down** button.
- 4 Check if the order of selected image is change to the next one.



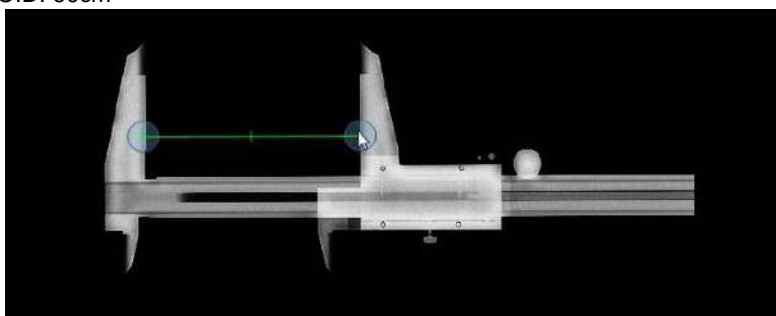
- The order of images can be changed in the same series only.
- The order of multi selected images cannot be changed.
- If changing the order of images, their instance number is also changed.
- Some backed-up images are limited to apply this function.

7.26 Correcting Pixel Spacing of Image



- This is the preceding function of the **Real size** function to display the real size of an object.
- This function corrects pixel spacing generated by magnification to display the object of each image as a real size.

- 1 Select an image and click on the **Image Pixel Spacing** button in the **Tools** menu.
 - 2 When the cursor is changed to a ruler shape, click and drag a mouse button at the start point of the object. Release the button at its end point.
- Image information (Exmaple)
 - Object: Vernier calipers fixed as 100mm
 - SID: 130cm
 - OID: 60cm



- 3 When the **Correction for Real Size Measurement (Image)** dialog appears, enter the real length of the object to **Length** of the **New** menu. The result of converted pixel spacing value is also indicated.



Name	Description
Current	Based on the detector currently connected.
Pixel Spacing	The pixel spacing preset to the current detector.
Length	A converted segment length in magnification by pixel spacing set to the current detector.
New	Based on the current image.
Pixel Spacing	<ul style="list-style-type: none"> • The pixel spacing applied to the current image. • The virtual distance between pixels according to the converted magnification by the number of pixels correspond to the segment of actual measurement.
Length	Input the length of actual measurement.

- 4 You can measure the segment again by lengthening or shortening it after moving its position.
- 5 The configured pixel spacing is not applied to the next shooting.



- In case of real shooting, it is easy to measure the actual length by putting the object like a flat ruler on the same SID and OID with the subject.
- The length of object for measurement is recommended 100mm or longer.



- The correction result of pixel spacing is applied to the corresponding image only.
- When you take an image with one detector, refer to Detector Menu in Ecoview Service Manual if it is necessary to correct pixel spacing to apply the value of magnification correction according to the fixed SID and OID.

7.27 Using Tools for Print

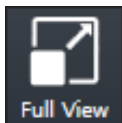


- Use the tools for printing images from the **Print** mode only.



- Refer to <9.2 Printing> for the detailed information about the way to use tools for print only.

7.28 Using Full View



- Use this function to see the selected image in a full size.

How to Use

- Double click the image or click on the **Full View** button.
- This function can be used under Zoom, Pan, Fit, and W/L menu. When you change W/L, it is applied to the image.



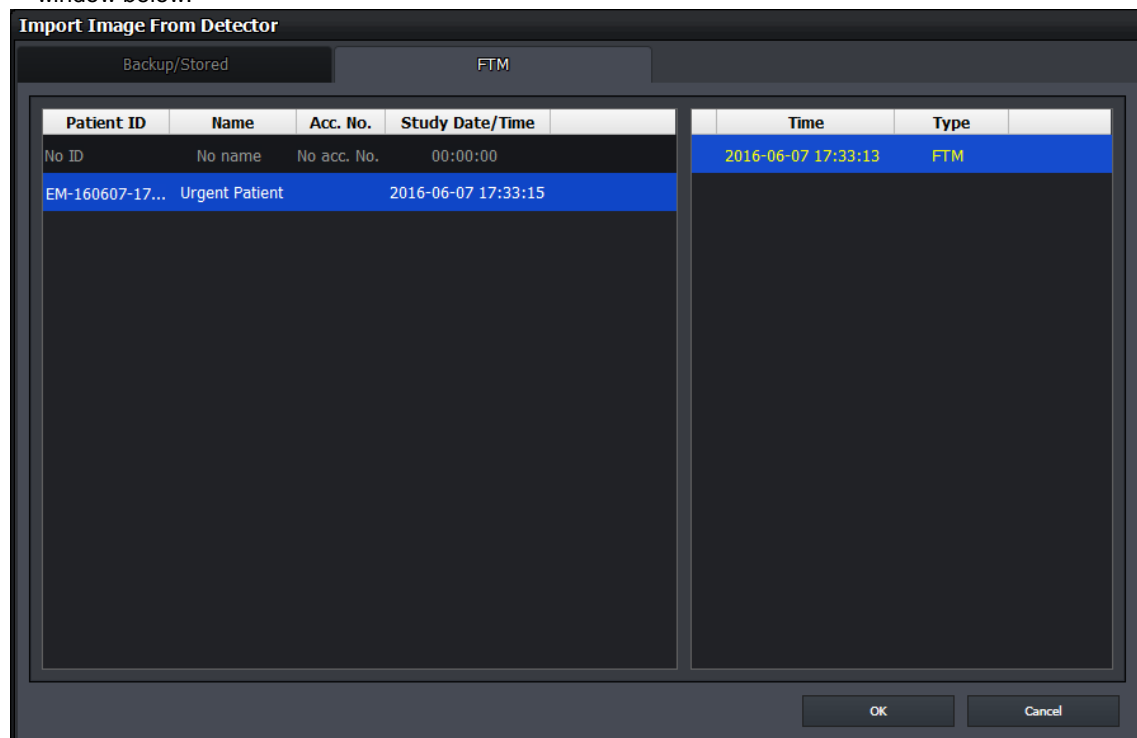
7.29 Getting Full-Sized Image



- Use this function to get a full-sized image of the selected preview or FTM image.

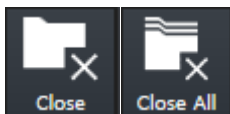
How to Use

- You can select multiple FTM or preview images to import a full Image, and automatically import images without selecting a study.
- If you cannot import a full-sized preview image automatically, you can select a full size image through the window below.




- When Ecoview is used for vehicle inspection, the function to automatically import images without selecting a study is not available.

7.30 Closing Study



- Use this function to close a study which is being shot or searched.
- You can close one study (**Close**), or close all studies (**Close All**).

How to close one study

- Click on the **Close Study** button from **Tools** panel.
 - If there is no step for shooting, click  button in the **Study** tab.
 - If steps exist for shooting, a pop-up message shows for deciding whether you really close the study or not. The steps will disappear after you close the relevant study.
- Check if the current active study is closed and terminated normally.
- In case you close **Ecoview**, check if you close all studies being shot.
- Only a suspended study can be closed from the study management tool.
- After the study is closed, images can be transmitted due to the automatic setting for transmitting images.
- After the images of the study are transmitted, the study can be closed due to the automatic setting for closing studies.



- Refer to <8.15 Sending Image> for the details about automatic settings for transmitting images and closing studies.

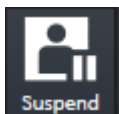


- Refer to <7.31 Suspending Study> for the details about suspending studies.

How to close all studies


- Click on the **Close All Study** button from **Tools** panel.
 - If steps exist from shooting, a pop-up message shows for deciding whether you really close the study or not.
- Check if all current active studies are closed and terminated normally
- In case you close **Ecoview**, check if you close all studies being shot.

7.31 Suspending Study



- Use this function to suspend a study being shot.
- You can check the suspended studies from the list of study management.
 - It is possible to retake or close the selected study from the list.

How to use

- 1 Click on the **Suspend Study** button from **Tools** panel.
 - If steps exist for shooting, click  button in the **Study** tab to select whether you close or suspend the study.
 - This function only applies to the study being shot.
- 2 From the study management list, check if the study you select is suspended normally.
 - The suspended study can be opened or closed again from the list.
 - Not only the suspended study but the steps which are set to be shot can be checked from the list.
 - If you shot the suspended study additionally, the steps set to be shot are also added to the list.



- Refer to <8.2.3 Checking the Result of Searched Study> for checking the list of suspended studies.

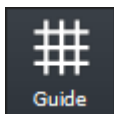


- Refer to <8.5 Insert Image> for instruction on how to keep shooting or for additional shooting.
- Refer to <8.20 Closing Study> for the information about closing the suspended study.



- You cannot use this function if there are more than one image exist.
- You cannot apply this function to the study for correcting pixel spacing.
- In case of stitch step, the steps set to be shot are not stored when you suspend a study.

7.32 Image Guide Lines



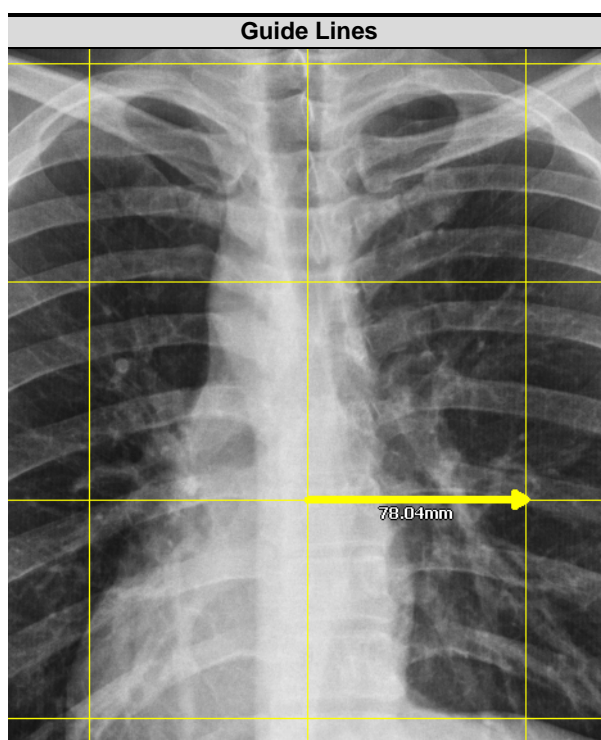
- You can use the guide button to display the guide lines, and check the symmetry of the image and the position of the area of interest.

How to display the line

- Click the **Guide** button in the **Tools** panel.
- Move to the image window and check that the guide lines are displayed.
- Click and drag the end of the arrow displayed in the center of the image to adjust the spacing of the grid lines.

How to clear the line

- In the **Tools** panel, click the **Guide** button again to turn off the guide mode.



- When cutting the image (Crop Mode), the guideline is not visible.
- When comparing a Study (Compare Mode), the guideline is not visible.



- If you change the guideline size and whether or not to use it in Print mode, it will not be saved in the image.
- If you set to use the guideline to image, it is also recorded at the time of burning.
- When recording (burning), the arrow in the center of the image is not recorded.

8. Study Management

This section describes the way to use the study management tools.

- Checking Management Tools
 - Using Study Search Tools
 - Study Management Tools
 - Adding New Study
 - Making Additional Exposure
 - Editing Patient Information
 - Moving Image to the Other Study
 - Opening the Study
 - Deleting the Study
- Executing QXLink / QXLink Report
 - Exporting the Image
 - Importing the Image
 - Stitching the Image
 - Sending the Image
- Sending the Image to Print Mode
 - Using Statistics
 - Multiple Selection
 - Comparing Studies

8.1 Checking Management Tools

8.1.1 Study Search Tools

- You can search the stored study list by using the study search tools.
 - It is available to search studies quickly and exactly by inputting various search conditions.
- You can filter the search result as needed.
- You can find the study search tools from the **Database** mode.

8.1.2 Study Management Tools

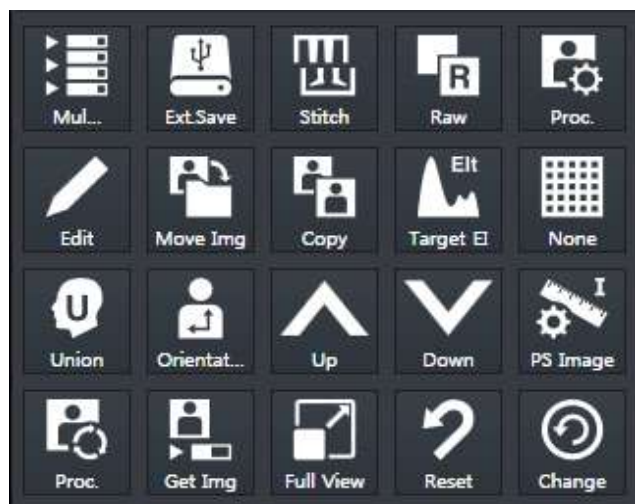


- You can use the study data in various ways by using the study management tools.
 - Perform a new study by using patient information in the study data.
 - Modify or manage the information and images in the study data.
 - Check the image by connecting **Ecoview** with **QXLink** if **QXLink** is installed normally.
 - Store the study data to the storage medium or print it.
 - Send the study data to DICOM or print is as a DICOM format.
 - Available to use the Statistics function.
 - Available to compare two selected studies.
- You can find the study management tools from the **Database** mode.

8.1.3 Image Management Tools



- You can use images in various ways by using image management tools.
 - Available to send the study data to DICOM or print it.
 - Available to modify patient information in the study data.
 - The image management tools are located in the **Tools** panel in the expansion type of



Exposure mode and the **Viewer** mode.

8.2 Using Study Search Tools

8.2.1 Searching Study Conditions

- You can search the study data using the study search tools in the **Database** mode.
- Eight search conditions are provided for searching studies.
- **AND** arithmetic operation is applied to the inserted search condition.

Search Item	Input Method	Partial Search	Allowed Characters
Patient ID	Input	Possible	(,) , + , - , _
Patient Name	Input	Possible	(,) , + , - , _ , @ , /
Accession Number	Input	Possible	(,) , + , - , _ , @ , ' , ` , ~ , ! , ? , @ , # , : , ; , , , ,
Bodypart	Input	Possible	(,) , + , - , _
Patient Sex	Select one among M, F, O	Impossible	None
Patient Age	Select one among D, M, Y and input numbers	Impossible	None
Study Date	Select date	Impossible	None

8.2.2 Inputting Search Conditions

Patient ID / Patient Name / Accession Number / Bodypart conditions

- Select one of the three items - **Patient ID**, **Patient Name** and **Accession Number**. Or, apply all three items to search their information.
- Input the patient ID, patient name, and accession number directly.
 - You can input or search condition of each item one at a time.
 - If you choose all three items to search, the result will be showed for each item.

Patient Sex condition

- Select gender of the patient.
- You can select among **M** (Male), **F** (Female), **O** (Other).

Patient Age condition

- Select a unit of the patient age and input numbers.
- You can select among **D** (Day), **M** (Month), **Y** (Year).

Study Date condition

- Scheduled Date offers two type of input method.
 - Clicks Period button (**Today, Week, Month**)
 - Inputs date with a mouse button (**Start Date / End Date**)



- Select **...** and input the scheduled date with a mouse button from the keypad calendar.
 - You can select **Start Date** and **End Date** separately.
 - You can also change the date by clicking on a date from the keypad calendar.

Initilaize the search condition

- Click on the **Default** or **Clear** button to initialize search conditions.
 - **Default** : The **Study Start Date** and **End Date** values are initialized to the today's date.
 - **Clear** : Initialized to search conditions that include all dates.

Search

- Search studies by clicking on the **Search** button after setting the search condition.
- All study data is searched under the initialized search condition.

8.2.3 Checking the Result of Searched Study

Study Key	S..P..B...	Img. Count	Study Date Time	Acc. No.	△	Patient ID	Patient Name	Sex	Age	Birth Date	Modality	Bodypart
27		0	2014-09-05 16:57:11			00001	test	O	1Y		DX	Chest;Hand
21		2	2014-09-05 15:47:17			EM-140905-154717	Urgent Patient	O	1D	2014-09-05	DX	Chest
24		2	2014-09-05 16:32:27			EM-140905-163227	Urgent Patient	O	1D	2014-09-05	DX	Chest
25		2	2014-09-05 16:34:32			EM-140905-163432	Urgent Patient	O	1D	2014-09-05	DX	Chest
26		1	2014-09-05 16:54:35			EM-140905-165435	Urgent Patient	O	1D	2014-09-05	DX	Hand
28		1	2014-09-16 15:14:44			EM-140916-151444	Urgent Patient	O	1D	2014-09-16	DX	CHEST
30		1	2014-09-16 15:24:48			EM-140916-152448	Urgent Patient	O	1D	2014-09-16	DX	CHEST
32		1	2014-09-16 15:26:56			EM-140916-152656	Urgent Patient	O	1D	2014-09-16	DX	SKULL
33		1	2014-09-16 16:03:37			EM-140916-160337	Urgent Patient	O	1D	2014-09-16	DX	SKULL
38		0	2014-09-23 20:38:43			EM-140923-203843	Urgent Patient	O	1D	2014-09-23	DX	CHEST
40		1	2014-09-23 20:52:37			EM-140923-205237	Urgent Patient	O	1D	2014-09-23	DX	CHEST
42		2	2014-09-23 20:57:26			EM-140923-205726	Urgent Patient	O	1D	2014-09-23	DX	CSPINE;SK...
22		27	2012-09-24 08:55:59	1417SA		Unknown	Unknown	O	1D	2014-02-10		Abdomen;...
23		0	2013-02-27 16:37:25	1417SB		Unknown	Unknown	O	1D	2014-02-10	CR	肋骨;膝...
8		27	2012-09-24 08:55:59	1417SA		Unknown	Unknown	O	1D	2014-02-10		Abdomen;...
7		23	2013-02-27 16:37:25	1417SB		Unknown	Unknown	O	1D	2014-02-10	CR	肋骨;膝...
2		27	2012-09-24 08:55:59	1417SA		Unknown	Unknown	O	1D	2014-02-10		Abdomen;...
17		2	2014-08-12 13:57:13			VW0001	Namkung	O	28Y	1986-01-01	DX	C-spine

How to check the searched result

- Click on the **Search** button and check the result from the study list. You can check various information of each study.

How to filter the search result



- You can filter the needed information after checking the search result. Click on the **All Study** button to choose the related options as follows.

All Study	Rejected Study	Not Rejected Study	Suspended Study

How to select the study

- Select the desired study.
 - You can select multiple studies by using the **Ctrl** or **Shift** key.
- Check the thumbnail image displayed at the right side of the study list.




















How to open the study

- Double-click the desired study to open.
- The screen is converted to the **Viewer** mode and the relevant image is displayed on the window.



- Refer to <10.4 Managing the List Header and Field> for the detailed information about the search list header and field management.

8.3 Study Management Tools

Icon	Function	Description
 New	New Patient	Adds a new study and shots images by using the existing study information.
 Insert	Insert Image	Opens the existing study and make an additional exposure.
 Edit	Edit Patient	Modifies the patient information.
 Move	Move Image	Moves the study or images to another study.
 Open	Open Study	Opens the study and checks relevant images.
 Reject	Reject Study	Deletes the study.
 Restore	Restore Study	Restores the rejected study.
 QXLink	QXLink Viewer	Calls QXLink 3 program.
 QXLink Report	QXLink Report	Searches report of the relevant study while running QXLink 3 .
 Close	Close Study	Closes the suspended study.
 Export	Export	Exports images to the storage medium.
 Import	Import Study	Imports study and image from the storage medium.
 Stitch	Stitch Image	Combines more than two images.
 Send	Send	Sends images to the DICOM server.
 Multi-S...	Multi Send	Sends the image by selecting the server set to Protocol List .
 Print	Print	Adds images to the Print mode for making DICOM print.
 Statistics	Statistics	Calculates statistics of the selected study stored in the database.
 Multi-S...	Study Multi Select	Selects two or more studies.
 Compare	Compare	Compares two selected studies.



- **QXLink 3** is the image viewer program developed by ECORAY. Refer to **QXLink 3 User Manual** for the detailed information about **QXLink 3**.

8.4 New Patient



- You can start a new study by using the patient information in the selected study.

How to use

- 1 Choose the study to be used as patient information.
- 2 Click on the **New Study** button and check if the screen is converted to the **Exposure** mode.
 - You can make an exposure if the new study is registered successfully.
 - If you select more than two studies, they will be registered as new studies.
 - The time of registering new study is applied as **Scheduled Date Time**.



- It is not needed to register the patient information additionally since this function uses patient information from the selected study.

8.5 Insert Image



- You can open the selected study again and make an additional shooting.

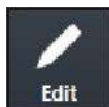
How to use

- 1 Choose the study to make an additional shooting.
- 2 Click on the **Insert** button and check if the screen is converted to the **Exposure** mode.
 - The existing study is registered again, and you can make an additional shooting.
 - If you select two studies or more, the existing studies are registered again as many as you select.
 - In case of a suspended study, it is resgistered with the images of existing studies if there are steps to be shot.



- You cannot make the additional shooting if the relevant study is in use from the other mode.
- You cannot make the additional shooting with the backed-up study.

8.6 Edit Patient



- You can modify the patient information of the selected study.

How to select a study

- Select the study for modifying its patient information and click on the **Edit Patient** button.
 - In the **Exposure** or **Viewer** mode, select an image and click on the button in the area of image adjustment tools.
 - In the **Database** mode, select a study and click on the button in the area of management tools.

How to modify patient information

- Click on the **Edit Patient** button to open the following window.
- Click on one of the three panels from the window.

Edit Patient

Scheduled **Unscheduled** Reserved

1 2 3

Patient ID: 201606030918

Last Name: Jane

First Name: Fuma

Sex: Female

Birth Date: 1992-06-03

Acc. No.: 3584321

Performing Physician: service

Height / Weight: 165.45 cm 64.22 kg

Study Description:

Patient Comments:

Referring Physician:

Diagnosis Description:

Additional History:

Procedure Priority: ROUTINE

Edit Cancel

1 Scheduled panel

- The prescribing information is modified as the one brought on by using DICOM Worklist.
- Unlike the **Registration** mode, this panel does not offer any tool buttons.

2 Unscheduled panel

- You can input and modify the prescribing information directly.
- You cannot modify **Scheduled Date Time**.
- It is necessary to enter a value for the required field.

3 Reserved panel

- The prescribing information is changed to the reserved one by using **Scheduled** or **Unscheduled**.

- Unlike the **Registration** mode, this panel does not offer any tool buttons.



- Refer to <5 How to Register Patient Prescribing Information> for the instruction on how to register the patient prescribing information.



- If you input the registered ID, the other information in that ID is registered automatically.
- If several patient information exists since **Patient ID** is overlapped in the database, you can select patient information from the following pop-up window.

Patient Information [X]

Name	Birthdate	Sex
Kim Lee		0
Kim		0

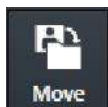
OK Cancel

- Click on the **Edit** button to complete modifying patient information.
 - Click on the **Cancel** button to cancel modifying the patient information.



- Refer to Registration Group in Ecoview Service Manual about how to edit items from the **Edit Patient** window.

8.7 Move Image to the Other Study



- You can move all or partial images of the selected study to another study.
- This function can be used for combining several images to a single image, or for dividing a study into several ones.

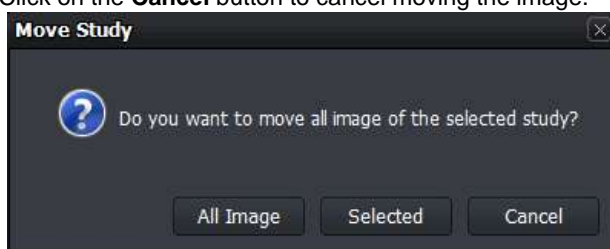
Select images to move

- 1 Select all or partial images in a study and click on the **Move Image** button.
 - In the **Exposure** or **Viewer** mode, select an image and click on the **Move Image** button in the area of image adjustment tools.
 - In the **Database** mode, select a study and click on the **Move Image** button in the area of management tools.
 - If you plan to move some of the images, select a study and choose images from the thumbnail.
 - You cannot move more than two studies at the same time.



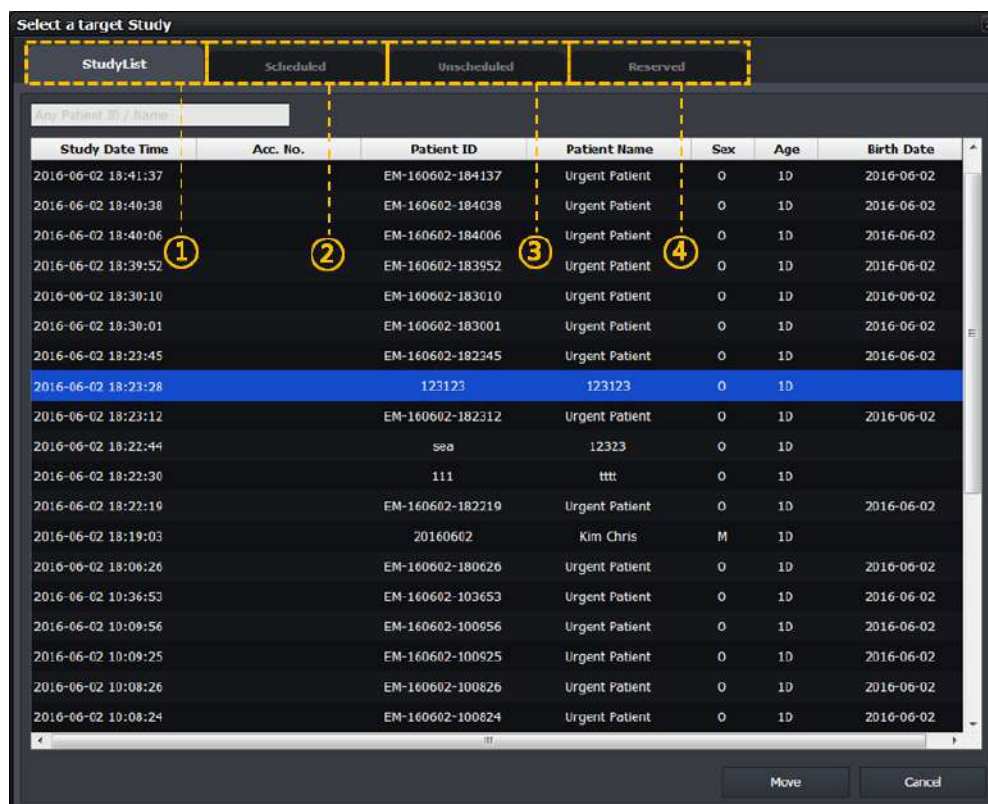
- The study can be moved only when you use Ecoview for Vehicle.
- Refer to <9.4.9 Additional Functions> for the way of moving the study.

- 2 Select **All Image** or **Selected** from the pop-up message box.
 - Click on the **Cancel** button to cancel moving the image.



Move images to the other study

- Click on the **Move Image** button to open the following window.
- Click one of the four panels from the window.



1 StudyList panel

- In the **Database** mode, items in the study management list displayed on the window are showed only in the target study list, except the items include the images you selected.
- In the **Exposure** or **Viewer** mode, studies displayed on the window are showed only in the target study list, except the items include the images you selected.
- If this '**Move Image**' function is used for examination, all items of the study management list in Location displayed on the window are showed in the target study list, except the items include the images you selected.



- Refer to <9.4 Using Ecoview for Vehicle> for the information about how to use this function for examination.

2 Scheduled panel

- The prescribing information brought on by using DICOM Worklist displays on the target study list.
- Unlike the **Registration** mode, this panel does not offer any tool buttons.

3 Unscheduled panel

- Input the patient prescribing information as a target study item.
- Unlike the **Registration** mode, this panel does not offer any tool buttons.

4 Reserved panel

- The patient prescribing information reserved by using **Scheduled** or **Unscheduled** displays on the target study list.
- Unlike the **Registration** mode, this panel does not offer any tool buttons.



- Refer to <5 How to Register Patient Prescribing Information> for the instruction on how to register the patient prescribing information.

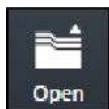
- Move images to the target study item among the study lists showed on the selected panel window.
 - Select and input the target study item and click on the **Move** button.
 - Check if the images in all study lists are moved correctly.

- You can also check the image movement from the thumbnail.



- No image but the study information can be left only if all images are moved.
- The images cannot be moved if the relevant study is in use from the other mode.
- The backed-up image cannot be moved.
- This function cannot be applied to the study for correcting pixel spacing.
- This function cannot be applied to the rejected image.
- This function cannot be applied to the preview and FTM images.
- This function cannot be applied to the stitch step.

8.8 Open Study



- You can open the study from the study list and review its image.
- When you open the selected study, the screen is converted to the **Viewer** mode automatically.

How to use

- 1 Choose the study from the study list.
- 2 Click on the **Open Study** button and check if the screen is switched to the **Viewer** mode automatically and the image is displayed.
 - You can select and open two or more studies at the same time.
 - In case of the suspended study, it is opened as the additional exposure mode. If there is a step to be shot, the suspended study will be registered with the images of existing studies.

8.9 Reject Study



- You can delete the study selected from the study list.
- You cannot delete the opened study.

How to use

- Choose the study from the study list and click on the **Reject Study** button.
 - You can select and reject more than two studies at the same time.

Input reason



- 1 Click on the **Reject Study** button to open the dialog for selecting a **Reject** reason
- 2 Choose one of the reasons to reject the study.

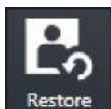


- Refer to Rejected Reason Menu in Ecoview Service Manual for the information about changing the **Pre-defined** reasons.

Close

- Click one of the reject reasons to reject a study.
- If you search studies again, the rejected one will be indicated in gray or will not be searched depending on the setting.

8.10 Restore Study



- When you reject a study, the **Restore** button becomes activated at the same time. Click on the **Restore** button to restore the rejected study.



- If you choose more than two studies, the **Restore** button becomes deactivated.

8.11 Executing QXLink / QXLink Report



- Use this function to call **QXLink 3** and use functions of **QXLink 3 Viewer**.
- You can search images through **QXLink Viewer** only when the images have been sent to **QXLink Server**.



- Use this function to search a report at the same time when **QXLink Viewer** searches images.



- Set **QXLink Server** to check if the images have been sent to **QXLink Server**.
 - Refer to Storage Menu in Ecoview Service Manual for the information of setting DICOM Storage.
- The **QXLink 3** icon is not showed if **QXLink 3** is not installed.
- The available version of **QXLink 3** which can be called from **Ecoview** should be **3.2** or higher.

Introducing QXLink 3

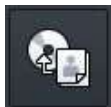


QXLink 3 is the PACS program developed by ECORAY. You can send the acquired images from **Ecoview** to save and manage them as well as use the various functions of **QXLink 3**.



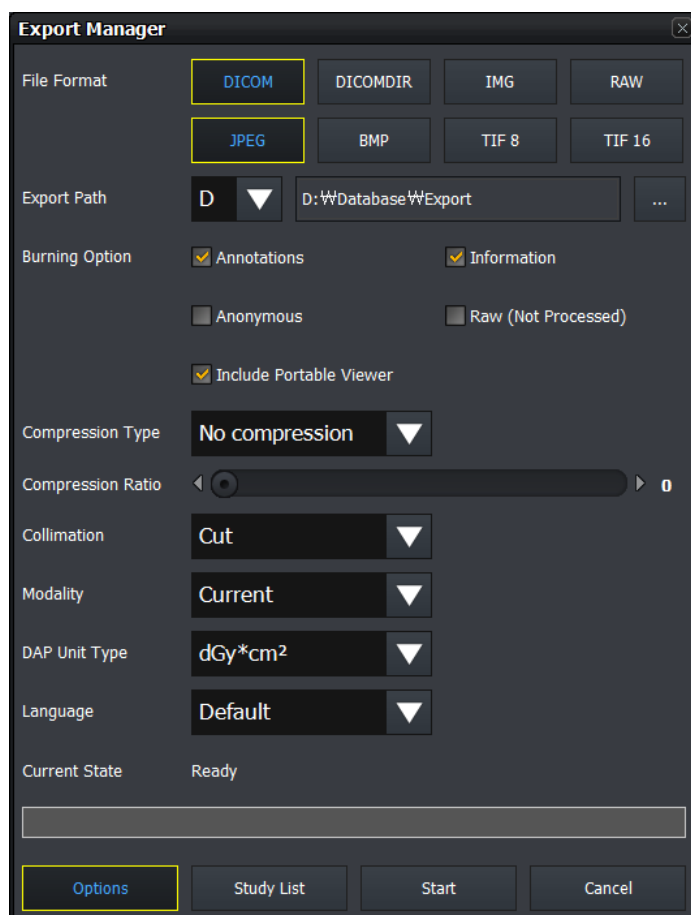
- Refer to **QXLink 3 User Manual** for the detailed information about installing and using **QXLink 3**.

8.12 Exporting Images





- Use this function to export study items selected from the study list to local or to the external storage medium.
- It supports various storage medium like HDD, USB, CD, DVD, etc.
- It also supports various image format conversions.
- You can execute other actions while importing images. (e.g. shooting or sending images)

How to use



- 1 Select studies to be exported from the study list.
 - You can choose several studies by using **Ctrl** or **Shift** key.
- 2 Click on the **Export** button.
 - The **Export Manager** window displays.
- 3 Set various options such as image format, storage path, etc.
 - Click on the **Options** button to set additional options.
 - Click on the **StudyList** button to check the list of studies to be exported.
- 4 Click on the **Start** button to export images.
 - You can suspend exporting images while converting the files.
- 5 You cannot change the configured options if the exporting is stopped or failed.

Close

- 1 Click on the **Close** button or  to finish exporting the image.
 - If you click  while exporting images, the progress window is hidden but the images continue to be exported.
- 2 The **Export Manager** window is closed after exporting images successfully. Check the exported files from the storage media.



- While the images are being exported, the **Export Manager** is not closed even you close **Ecoview**.
- A pop-up window will appear to ask if you continue to export reject / preview / FTM images if they are included in the study list to be exported.
 - It is not available to export the reject / preview / FTM images.

Image Information File

When you export files of **BMP**, **JPEG**, **Image**, **TIFF** and **RAW** format, the TEXT file including the relevant image information is generated together.


```

*****Patient Information*****
Name           : test name^^^^
Access Number  : acc. no test 123
Sex            : F
Age            : 35Y
Register Date  : 12/4/2014
Register Time  : 17:15:32
Exposure Date  : 12/4/2014
Exposure Time  : 17:15:40
Body Part      : SKULL
Referring Physician :

*****Image Information*****
Width          : 2552
Height         : 3065
Alloc Bits     : 16
Using Bits     : 14

*****Hospital Information*****
Name           :
Address        :
PerformPhysician : performing name


```



- The TEXT file is not exported when the file is exported to **DICOM** and **DICOMDIR**.
- If inapplicable characters (e.g. \:*?"<>|) are included in the patient ID, they cannot be included in a file name.
- When exporting a file, the generation rule of file name is as follows.
 - Common use (for hospital) : **Selected path**
 - Study Date]_[Study Time]_[Patient ID]_[Patient Name]_[Study Key]\[Acquisition Date]_[Acquisition Time]_[Patient ID]_[SeriesKey]_[InstanceKey].File extension
 - Common use (for examination) : **Selected path**
 - [Location Name]_[Location Scheduled Date]_[Location Key]\[Acquisition Date]_[Acquisition Time]_[Patient ID]_[StudyKey]_[SeriesKey]_[InstanceKey].File extension
- Exception 1 – **IMG** : Selected path\Study_[StudyKey]/S_[SeriesKey]_I_[InstanceKey].img
- Exception 2 – **DICOMDIR** : Selected path\I_No ('No' is the integer in 8 digits, increased sequentially.)
- Exception 3 – **DICOM** (including a portable viewer) : Selected path\dcm\Common (for hospital or for examination)

8.12.1 Setting Options for Exporting Images (including details)

Item	Description
File Format	Sets multiple image formats (more than 1 format)
BMP	Bitmap image format
JPEG	Compressed format for image loss developed by JPEG (Joint Photographic Experts Group).
TIFF	TIFF image storage format Both TIFF-8 and TIFF-16 cannot be selected at the same time.
IMG	ECORAY medical image format. The exported IMG file can be imported from Ecoview installed to the other systems.

RAW	Raw image data without including image-related information.
DICOM	Standard format of medical image by DICOM. Cannot be selected with DICOM DIR at the same time.
DICOMDIR	Standard format of medical image directory by DICOM. Cannot be selected with DICOM at the same time.
Export Path	Sets the storage path where the exporting images are saved.
Selecting a drive	Selects one of the lists of optical device drive (ODD) such as a pre-configured network drive, local drive, USB, CD, DVD, etc. If you select USB, CD, or DVD, insert the medium to the selected drive in advance and check if it is operated normally. • The network drive must be mapped as a drive letter (C, D..).
Selecting a path	In case of a local drive or USB, click  button to apply the directory of the selected drive.
Burning Option	Sets options to be recorded when exporting images.
Annotations	Includes the annotation information to the image. (If checked)
Information	Includes the Overlay information to the image. (If checked)
Anonymous	Sets whether the patient and hospital information is processed to be anonymous. (If checked)
Raw	Applies raw image without image processing. (If checked)
Software Collimation	Sets the image area.
None	Applies the image to its original size.
Cut	Applies the cropped area of image only.
Fill	Applies the outside area of the cropped image as a black color.
Fill & Center	Displays the cropped image from the original image in the center, and applies the area outside the cropped image to black.
Image Modality	Sets the image modality information.
Current	Uses the modality information without change.
DX/CR/DR	Uses the modality information by fixing it among DX/CR/DR.
DAP Unit Type	The DAP value to be transferred to the DICOM image is changed according to the set unit.
mg/cm²	-
ugy/m²	-
dgy/cm²	-
Language	Applies DICOM Language (16 languages).
Default	Not applying DICOM Language Encoding .
Status	Checks the processing condition of image exporting and its result.



- The following patient information is processed to be anonymous.
 - Patient ID, Patient Name, Other Patient ID, Other Patient Name, Patient Address, Patient Telephone Number
- The following hospital information is processed to be anonymous.
 - Institution Name, Institution Address, Referring Physician Name, Performing Physician Name, Operator Name

8.12.2 DICOM Setting Options for Exporting Images

Item	Description
Include Portable Viewer	Sets whether to include DICOM Portable Viewer . • This item activates only by checking DICOM or DICOMDIR .
Compression	Sets JPEG2000 compression way of DICOM image. • This item activates only by checking DICOM or DICOMDIR .
No Compression	Not apply the JPEG2000 compression way.
JPEG2000 Lossless	Compress the DICOM image as JPEG2000 without a loss.
JPEG2000 Lossy	Compress the DICOM image as JPEG2000 with a loss.
Compression Quality	You can set the JPEG2000 compression ratio of the DICOM image. • This item activates only when selecting JPEG2000 Lossy Compression .

You can input the compression ratio directly, or control the slide bar.



- The image can be damaged seriously when the compression ratio of JPEG2000 Lossy is higher, and this can affect to the image quality.

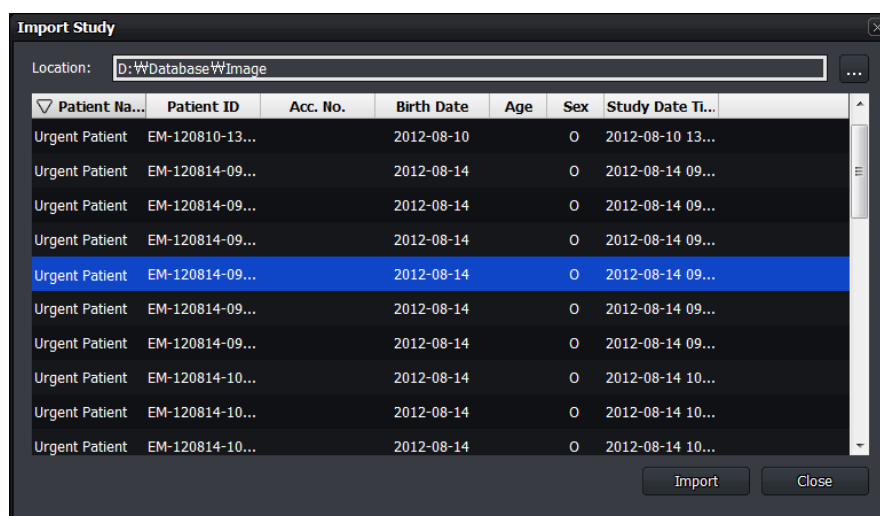
8.13 Importing Images



- You can import the exported study and image.
- You can only import the **IMG** format file created from **Ecoview**.

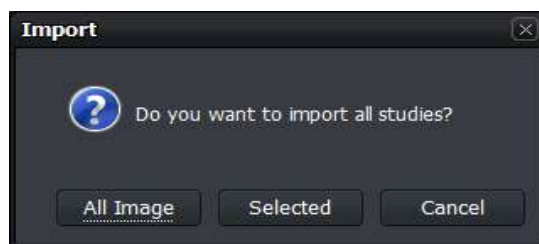
Start

- 1 Click on the **Import Study** button to open the **Import Study** window.
- 2 Click on button to select the location of the study file folder to be imported.
 - When you select the location, all study lists in the folder are showed automatically.
- 3 Select the desired study to be imported.
 - You can select multiple studies by using the **Ctrl** or **Shift** key.



Import

- 4 Click on the **Import** button.
- 5 Select **All Image** or **Selected** button from the **Import Study** window.
 - **All Image** – All studies are imported regardless of the selected item.
 - **Selected** – Only the selected studies are imported.
 - **Cancel** – Cancel importing studies.



Close

- 1 Click on the **OK** button to finish importing images.
- 2 Check the importing result by searching the study list again.

8.14 Stitching Images



- You can select and stitch more than two images.
- You can stitch up to 6 (six) images.



- Refer to <9.1 Stitching Images> for the detailed information about stitching images.

8.15 Sending Images



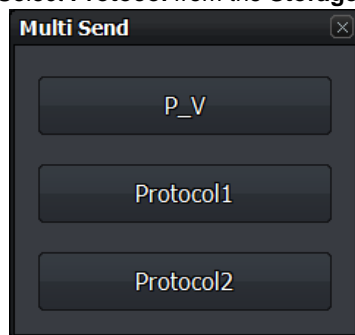
- You can select study or image and send it to the DICOM storage server.
- **Send**: Send images to the server configured in **SCP List**.
- **Multi Send**: Send images to the server configured in **Protocol List**.



- Refer to Storage Menu in Ecoview Service Manual for the information about **SCP List** and **Protocol List**.

Send

- 1 Select the study or image to be sent.
 - You can select multiple studies or images with the **Ctrl** or **Shift** key.
 - Check the connection state of the, **DICOM Storage** server before sending images.
- 2 Click on the **Send** button or **Multi Send** button.
 - Select **Protocol** from the **Storage Protocol** box if you click on the **Multi Send** button.



- 3 Click on the **All Image**, **Selected** or **Cancel** button from the **Send** box.

Check the sending status

- Check the image sending status from the status bar.
- Check the image sending status at the **Queue** tab.



- Refer to Queue Menu in Ecoview Service Manual for the detailed information about the **Queue** tab.

Use automatic sending / closing functions

- If the study is closed, it is sent to the DICOM storage server automatically according to the setting of auto sending function.
- If all images of the study are sent to the DICOM storage server, the study is closed automatically according to the setting of auto close function.
 - This function is activated even though the study indicated on the screen currently is different from the study which has been sent to the DICOM storage server.
- The auto sending function and the auto closing function cannot be used at the same time.



- Refer to General Menu in Ecoview Service Manual for the way to set auto sending and closing functions.



- The auto sending function cannot be applied to the study for pixel spacing.
- The rejected image is not included to the auto sending and closing functions.
- If preview / FTM images and the step which is not shot are included in the study, the auto closing functions cannot be used.

8.16 Sending the Image to Print Mode



- You can select study or image and send the image to the **Print** mode.
- The DICOM print can be available in the **Print** mode only.



- Refer to <9.2 Printing> for the detailed information about using the **Print** mode.

8.17 Statistics



- Select a study and extract its statistics data and graph.



- Refer to <9.6 Using Statistics Function> for the detailed information about the statistics function.

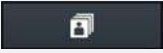
8.18 Multiple Selection

Select Multi Study

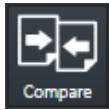


- You can select multiple studies in the **Database**, and **Registration** modes.



- You can select multiple images in a study by clicking on the **Multi-Select Thumbnail** button  or press Ctrl and Shift.

8.19 Compare Studies

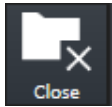


- You can compare more than two studies.



- Refer to <9.7 Comparing Studies> for the detailed information about comparing studies.

8.20 Closing Study



- Closes the suspended study selected from the list.

How to use

- 1 Choose a study which is on hold from the list.
- 2 Click on the **Close Study** button to check if the selected study is closed.
 - The image is sent and stored to external storage media (External Save) depending on the settings at the time of closing the suspended study.
 - In the DICOM server, the closed study is classified as the one being taken.
 - All suspended studies are closed when **Ecoview** closes.

9. Advanced Functions

This section provides instruction for using the advanced functions of Ecoview.

- Stitching Images
- Printing
- Using Ecoview for Vet
- Using Ecoview for Vehicle
- Exposure Index
- Using Statistics Function

9.1 Stitching Images

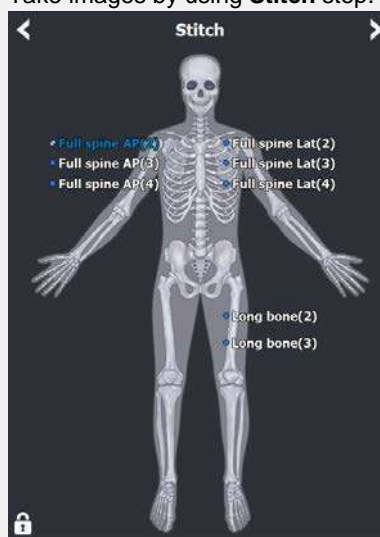
- Stitching images is a function that connecting two or more images as a unified one.
 - You can stitch up to 6 images.
 - The stitched image cannot be connected to other images again.
 - Only the same size images can be stitched together.
- When stitching images which have different brightness and contrast, the conditions are adjusted automatically.
- When adding steps after stitching, the stitched image is added as a new image.
- This function provides two type of stitching – **Physical Matching** (auto stitch) and **Pattern Matching** (manual stitch).
- This document explains the way to use **Pattern Matching**.



- **Ecoview Vehicle** does not provide the stitching function.

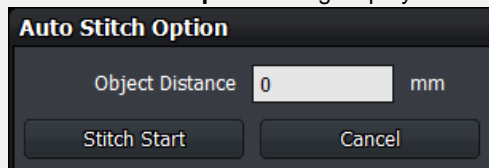


- There are two ways of stitching images as follows.
 - **Pattern Matching**: Recognizes patterns of the acquired images and matches them with their similar parts.
 - **Physical Matching**: Integrates U-Arm with the viewer and matches the images automatically by calculating their overlapped parts physically through SID and OID.
- Check the prerequisites when using the **Physical Matching** button for stitching images. Refer to <System Integration Guide> for the detailed information.
 - Integration of U-ARM with the viewer. (Check interoperability.)
 - Set the **Use Auto-Stitching** option in the **Setting** mode > **System** panel > **Integration** tab.
 - Take images by using **Stitch** step.

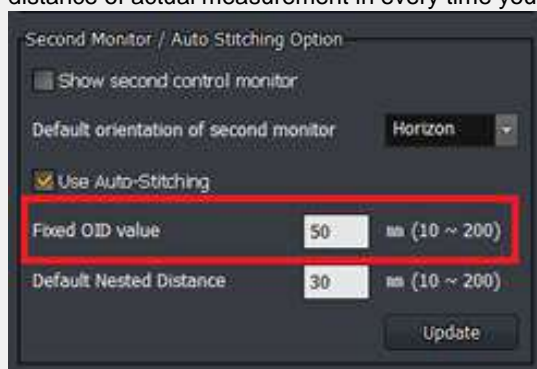


- Take images in the consecutive order of height.
- Contact the engineer in ECORAY for the detailed information about system integration.

- The way to input OID for measuring actual image size is as follows.
 - When you create a study for the first time by using the step registered in **Stitch Protocol**, the **Auto Stitch Option** dialog displays.



- This option is used for measuring the distance between a centerline of an object and surface of a detector (or bucky). Enter the distance in **Object Distance** for calculating actual measurement and applying it to the images to be stitched.
- Set OID value from the **Setting** mode > **System** > **Integration** tab to calculate the distance of actual measurement in every time you stitch images.



- Besides OID, it is necessary to perform the pixel spacing of a detector to get the correct image size. Refer to Detector Menu in Ecoview Service Manual for the detailed information.

9.1.1 Start

Select the original image



- Check the location of **Stitch Images** icon.
 - You can find it from the **Exposure** mode, **Database** mode and **Viewer** mode.

- 1 Select more than two images to be stitched and then click on the **Stitch Images** button.
 - You cannot select only one image for using the stitch function.
- 2 After clicking on the **Stitch Images** button, check if the screen for stitching image displays.



- The **Stitch Images** icon can be shifted to the **Quick Access** tab.

Check the original image

- 1 Check the original image from the stitch window.
 - The original image is displayed without cropping.
- 2 The original image is displayed as applying **W/L** which was set from the **Viewer** mode.



9.1.2 Checking the Tool Collection



1 Informatin tools (Info)

- You can check the patient name, sex and age.
- It is available to change Step after completing stitch.

2 Tools for changing order of original images (Sort)

- You can change the order of original images.


3 Tools for stitch (Stitch)




















- Tools need for stitching images.










4 Adjustment Tools (Tools)

- Tools for adjusting images.

9.1.3 Tool Buttons

Icon	Name	Description
	Change Step	Changes step information of a stitched image by modifying Bodypart, Projection, Patient Size information.

	Sort Up	Moves the order of the selected original image upward.
	Sort Down	Moves the order of the selected original image downward.
	Ascending Sort	Arranges the original images in ascending order.
	Descending Sort	Arranges the original images in descending order.
	Fit	Adjusts the image size to the image view screen. The cropped image can be also adjusted to the screen.
	Zoom for stitched Area	Enlarges the stitched part between each original image.
	Blend	Links the boundary between the two original images softly.
	Setting	Sets parameters for auto stitch.
	Move Up	Adjusts location of the original image to up/down/left/rights. You cannot adjust the first original image. Select and adjust the image from the second one.
	Move Down	
	Move Left	
	Move Right	
	Top	If an overlapping region is made because of the image movement, show or hide the selected image.
	Back	
	Pattern Matching	Stitches each original image automatically by the stitch algorithm.
	Select	Selects an image. Return the mouse button back to a default status.
	Zoom View	Magnifies or reduces the image.
	Pan	Moves the image to desired location.
	Crop	Sets the range of image by activating crop function.

	Trim	Adjusts the border of a selected image. Cuts the unnecessary part of an image.
	Decrease Brightness	Decreases brightness of an image.
	Increase Brightness	Increases brightness of an image.
	W/L	Adjusts brightness and contrast of an image.
	Decrease Contrast	Decreases contrast of an image.
	Increase Contrast	Increases contrast of an image.
	Reset	All processes are cancelled and return to default status.
	Save	Saves the stitched image with applying all processes.
	Cancel	Cancels stitch process.




9.1.4 How to Use

Auto Stitch

- Assign the order of each original image correctly by using the buttons for changing orders.
 - **Sort Up, Sort Down, Ascending Sort and Descending Sort button**
- Click on the **Pattern Matching** button and check the result.
- Adjust the position of each original image by clicking on the following buttons.
 - **Move Up, Move Down, Move Left and Move Right button**
- Match each original image to be overlapped properly by clicking on the **Top** and **Back** buttons.
- Click on the **Pattern Matching** button to check the result again.
- Repeat the steps 3~5 if you are not satisfied with the result of stitch.

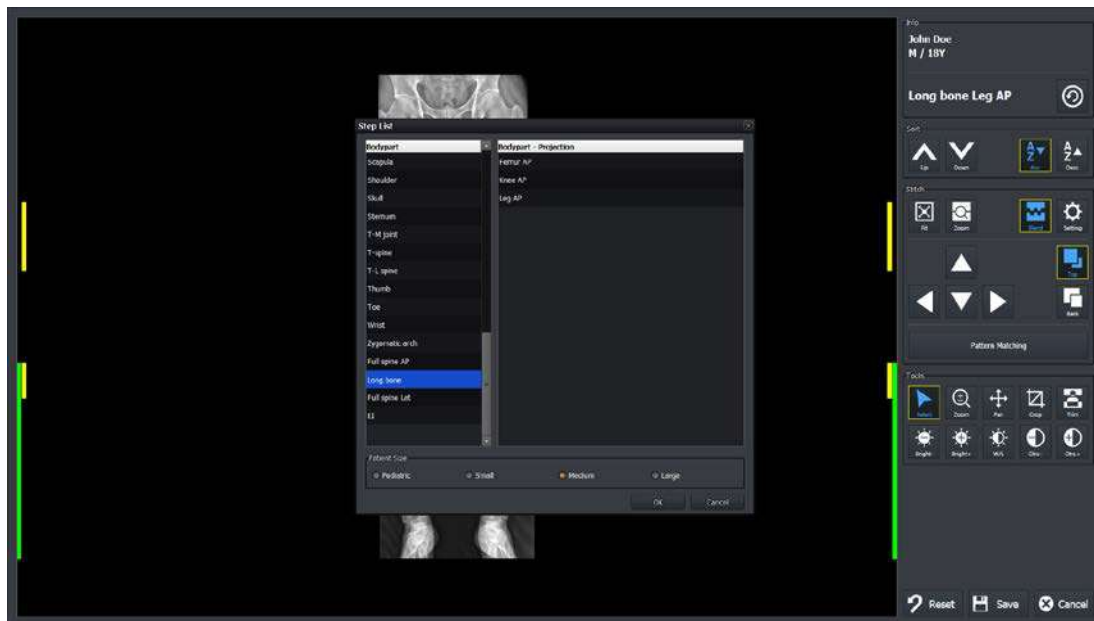


- It is not needed to adjust the stitched image additionally if you are satisfied with the first result of **Auto Stitch**.
- You can get the satisfying stitched image as the quality of original images is similar and their quality is fine.

Original Image	Applying pattern matching	Applying pattern matching after manual adjustment
		

Apply Step

- After checking the result of stitched image, click on the **Change** button to display the **Step List** screen.
- Select a step (**Bodypart, Projection**) to be applied to the stitched image and click on the **OK** button.



- The stitching image cannot be saved if steps are not selected.

Close

- Click on the **Save** button and save the stitched image.
- Check if the stitched image is added to the thumbnail as a new one.



9.1.5 Checking the Adjustment Function

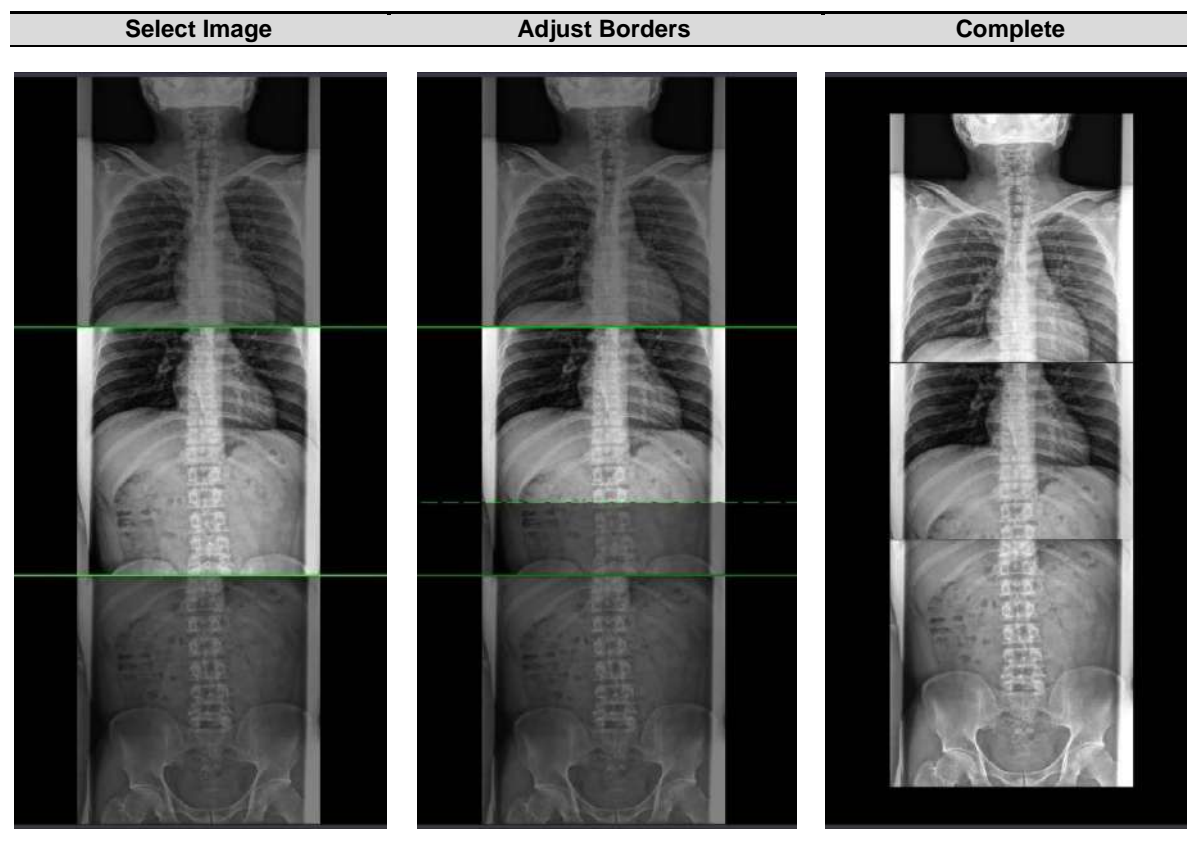
Adjust the border of images



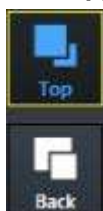
- You can adjust the border between selected images by using **Tools** → **Trim** buttons.
- This function can be used as cutting the unnecessary part of an image.

- 1 Click on the **Trim** button.

- 2 Select an image to be adjusted. A green frame is indicated around the selected image.
- 3 Click and drag the frame with a mouse button to adjust the image boundary. The adjusted boundary is indicated as a dotted line.
- 4 Click on the **Border Adjust** button again and check if the image area outside of a boundary disappears.



Overlapping images



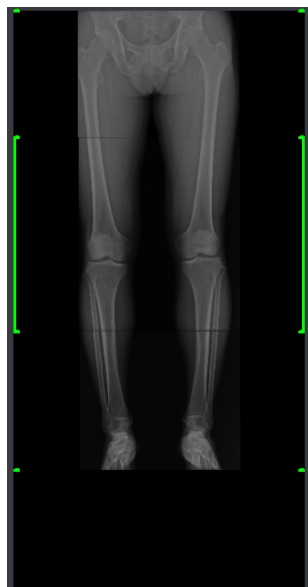
- Click on the **Stitch → Top** and **Back** buttons to show or hide the selected image.
 - **Top** button – Raise the selected image up to the overlapped area. (The selected image is showed.)
 - **Back** button – Lower the selected image down to the overlapped area. (The selected image is not showed.)





Top

Back



9.2 Printing

9.2.1 Sending Image to the Print Mode



- Click on the **Print** button and send the study or image to the **Print** mode.
- **Print** button is located in the **Exposure** mode, **Database** mode and **Viewer** mode.
- You can send the DICOM print from the **Print** mode only.

Precheck

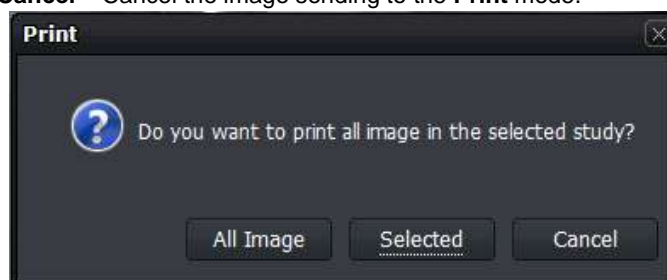
- Check if the DICOM print server information is set.
- Check the connection state to the DICOM print server (**ECHO**).



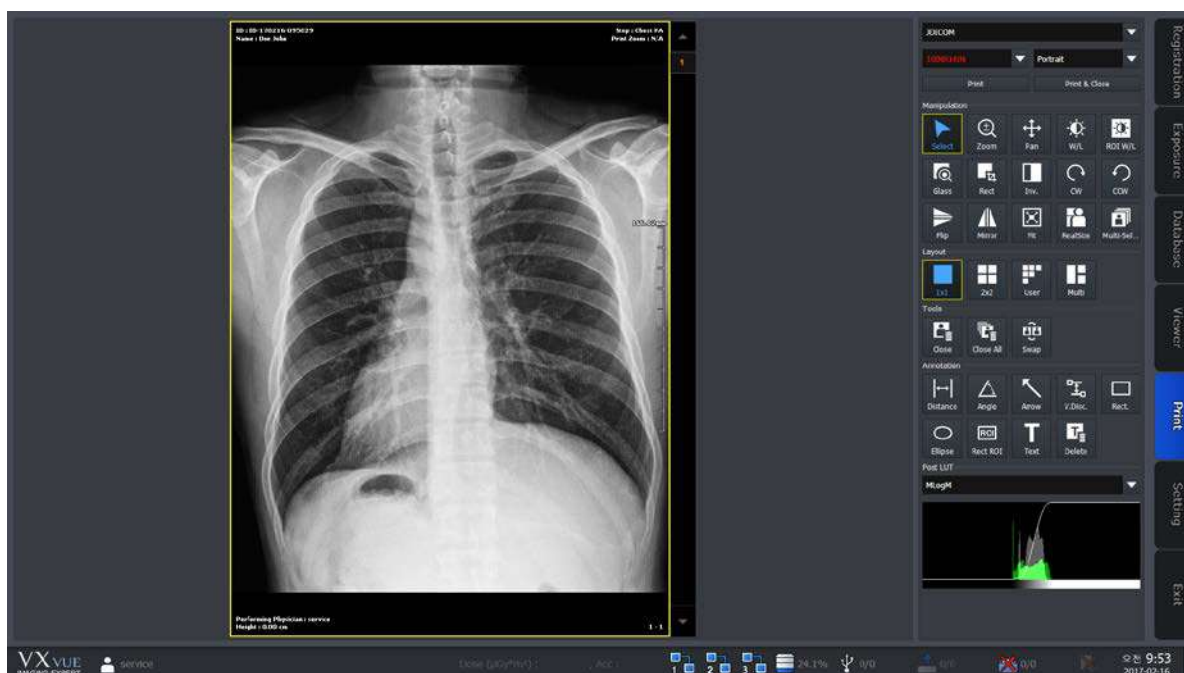
- Refer to Setting Common Items of DICOM server in Ecoview Service Manual for checking the setting and connection status of DICOM print.

Send images to the Print mode

- 1 Select the study or image to be printed from the study / image list.
 - You can select multiple ones by using the **Ctrl** or **Shift** key.
- 2 Click on the **Print** button.
- 3 Select **All Image** or **Selected** button in the **Print** dialog box.
 - **All Image** – All images including the selected image in the study are sent to the **Print** mode.
 - **Selected** – Send the selected image to the **Print** mode only.
 - **Cancel** – Cancel the image sending to the **Print** mode.



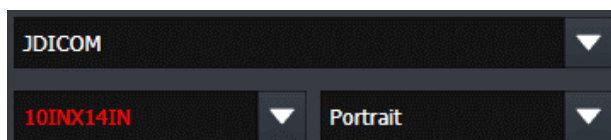
9.2.2 Checking the Print Mode



- 1 Check the image from the print view area.
 - The image on the print view is displayed on the basis of the real film.
- 2 Change the print format by changing the print setting.
- 3 Process the image with the image process tools.

9.2.3 Setting Print Options

- Select the print and film information of the selected image.
 - The selected information was configured previously from the **Print** tab by the user.



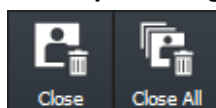
- 1 Select the name of DICOM print server.
- 2 Select the film size.
- 3 Select print orientation of the film.



- Refer to Print Menu in Ecoview Service Manual for the detailed information about print settings.

9.2.4 Using Tools for Print Only

Delete print images

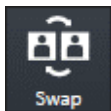


Delete the image to be printed in the **Print** mode.

- You can select multiple images by using the **Ctrl** or **Shift** key.
- 1 Select the image to be deleted from the print view.
 - 2 Click on the **Close** button to delete the image.

- 3 Click on the **Close All** button to delete all images.

Change the position of images



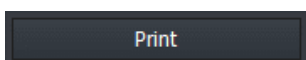
Change the position of two printing images.

- Select two images to change position by using **Multi Select** button with **Ctrl** or **Shift** key.
- 1 Select the two images from the print view to change their position.
 - 2 Click on the **Swap** button and check the changed position.

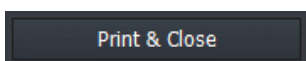
Print

You can print the image set in print view by sending it to DICOM print.

- Click the **Print** or **Print & Close** button to print image.
- Check the process from **Setting** mode → **DICOM** panel → **Print Queue**.



Printing the image.



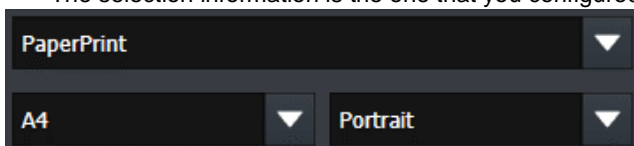
After printing the image, close all images in the Print mode.



- Refer to <7 Image Processing> for the detailed information about other image adjustment tools and POST LUT.

9.2.5 Using Paper Print

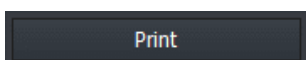
- Select the print and paper information of the selected image.
 - The selection information is the one that you configured on the Print tab in advance.



- 1 Select a print name.
- 2 Select the size of the paper to be printed.
- 3 Select the direction of printing.

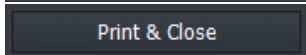


- Refer to Print Menu in Ecoview Service Manual for the detailed information about print settings.



You can print the images set in print view by sending them to the printer.

- Click the **Print / Print & Close** button.



9.3 Using Ecoview for Vet

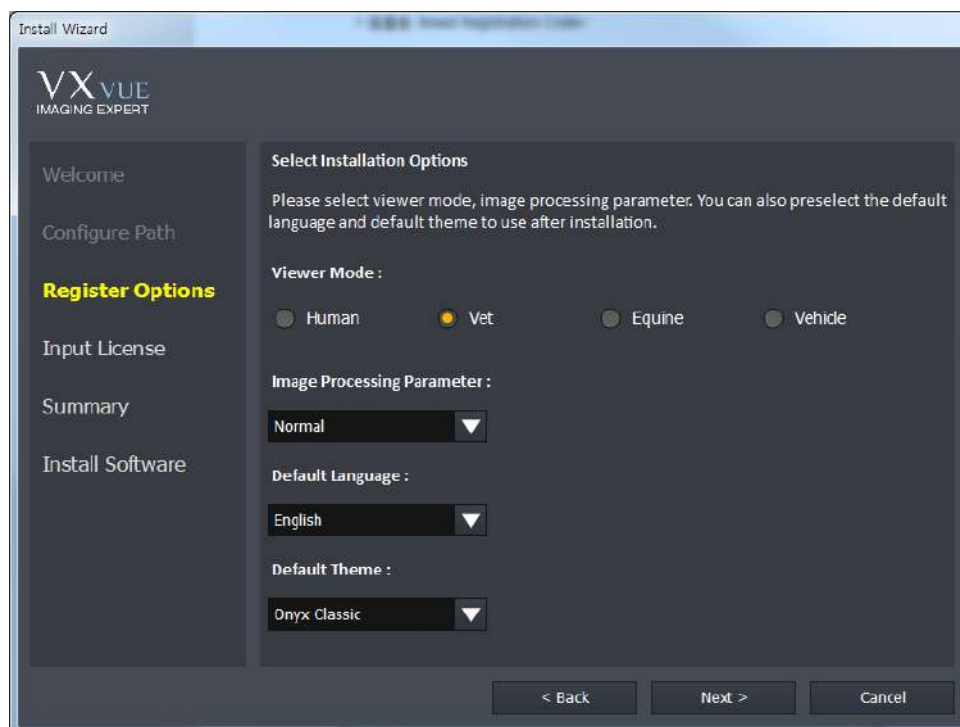
- You can use the **Ecoview** program not only for human but also for animals (Vet, Equine).
- The followings are additional functions of **Ecoview** for animals only.
 - Veterinary patient information
 - Veterinary Category
 - Veterinary Bodypart / Projection
 - Species Code
 - Breed Code
 - Breed Registration Code

Key word

Term	Meaning
Species	A unit of biological classification organized with a relationship of interbreeding and has common characteristic.
Breed	A group within a species that shares definable and identifiable characteristics (visual, performance, geographical, and / or cultural) which allow it to be distinguished from other groups within the same species.

9.3.1 Selecting Veterinary Type

When installing **Ecoview**, set the viewer mode as **Vet** or **Equine** if you want to use **Ecoview** for animals.



9.3.2 Veterinary Patient Information

The items of veterinary patient information are more than those of human because of various kinds of animal.

Additional patient information for vet

Search Item	Meaning	Note
Species Description	Explains species	Explains species
Species Code Sequence	Species code	Species code

Breed Description	Explains breed	Explains breed
Breed Code Sequence	Breed code	Breed code
Breed Registration Number	Breed registration no.	Breed registration number
Responsible Person	Person in charge	Responsible person for the animal
Responsible Person Role	Role of the person in charge	Role or task of the person in charge
Responsible Organization	Responsible organization	Responsible institution of animals
Sex Neutered	Neutralization	Neutralized or not

Check the additional patient information

- If you use the veterinary version, you can check the additional patient information which is to be inserted as follows.
 - You can check the following screen from the **Unscheduled** panel in the **Registration** mode.

9.3.3 Preparing for the Veterinary Exposure



- This chapter explains only about the difference of exposure procedures and preparation when preparing the veterinary version. As most of the other parts are the same as the human version, please refer to <How to Shoot Images> for the detailed information.

Adjust patient size



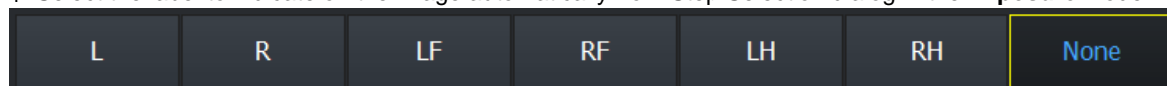
- Adjust patient size from **Patient Size**.



- Refer to Step Tab in Ecoview Service Manual for the detailed information about setting the patient size for each step.

Select Auto Label

1 Select the label to indicate on the image automatically from Step Selection dialog in the **Exposure** mode.



2 The priority of labeling is as follows.

- 1st : A label set from **Setting -> Procedure Manager -> Procedure**
- 2nd : A label set from the **Exposure** mode
- 3rd : A label set from **Setting -> Procedure Manager -> Step**



- Choose a category and a bodypart to register step. After that, an auto label is indicated on the bodypart name located in the step.
- Choose the registered step and take a shot, then a label is added on the image automatically.

Change Category

1 Click on the category text on the step selection dialog of the **Exposure** mode.

Exposure mode	Description
<div style="display: flex; align-items: center; justify-content: center;"> < Dog > </div>	Ecoview for Vet
<div style="display: flex; align-items: center; justify-content: center;"> < Equine > </div>	Ecoview for Equine

2 Select a category to use when the dialog for selecting a category shows.

- The built-in options of **Ecoview for Vet** are **Dog**, **Cat**, **Exotics**, **Equine**, and **Pre-purchase exam**.
- The built-in options of **Ecoview for Equine** are **Equine** and **Pre-purchase exam**.

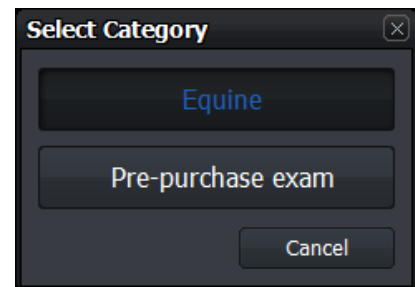
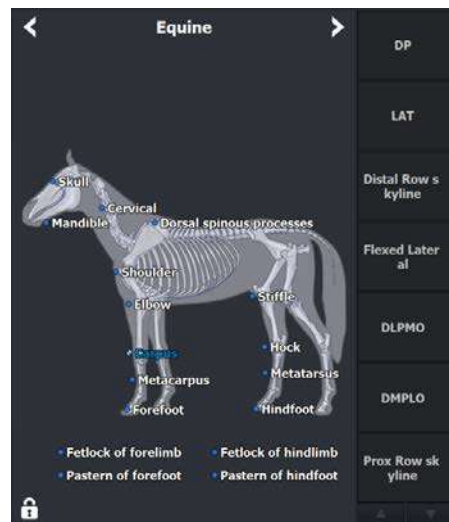
3 Check if the background image is changed after selecting the category.



- Refer to <6.5 Selecting Category and Step> for the detailed information about adding and changing categories.
 - You can add categories for Vet to **Ecoview for Equine** if necessary.

Basic Category	Category Selection Window
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">Ecoview for Vet</div> </div>	

Ecoview for Equine



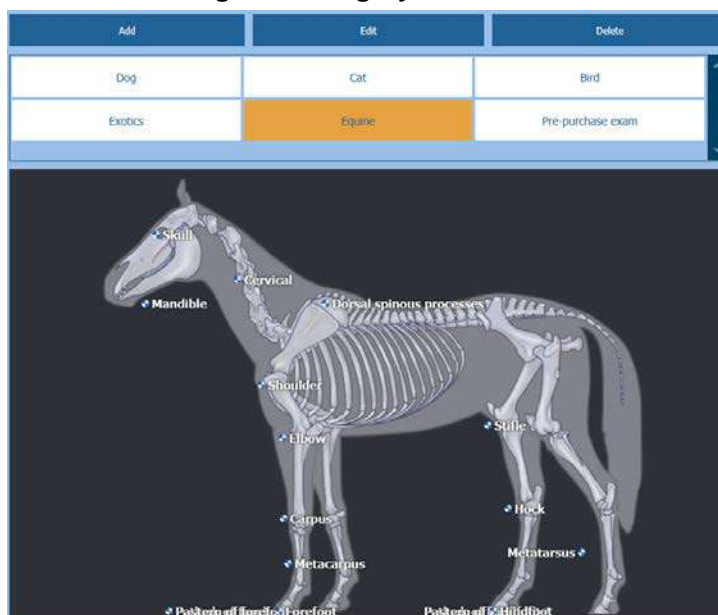
9.3.4 Veterinary Settings

- This chapter explains the difference of settings when the user operates **Ecoview** as a veterinary version.



- As the most contents are same as the human version, refer to Settings in Ecoview Service Manual for the detailed information about each item.

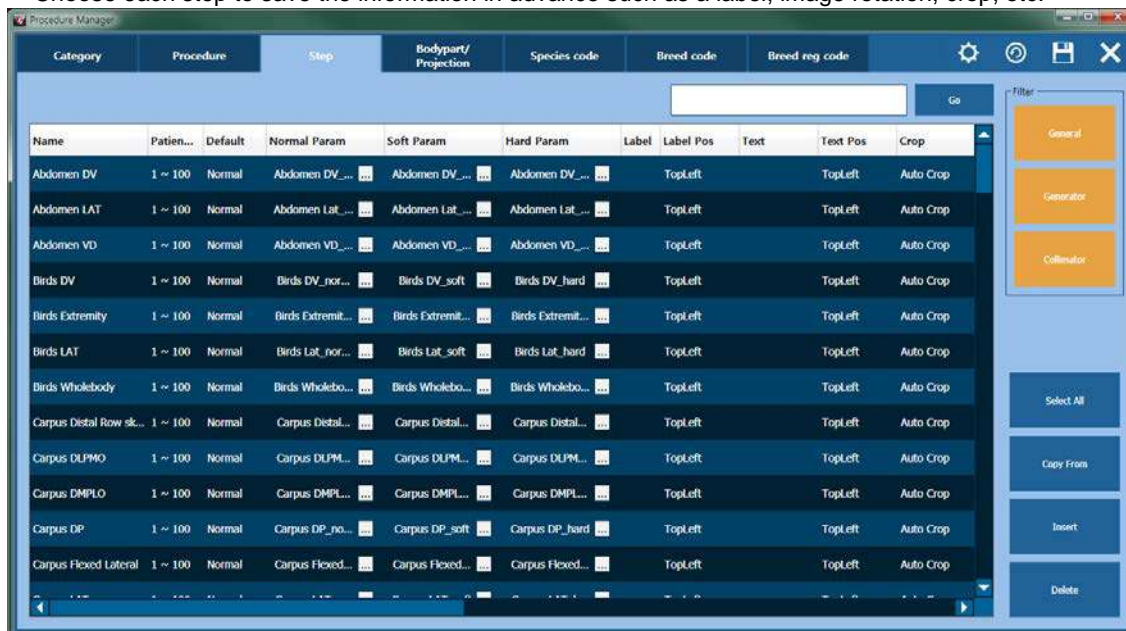
Procedure Manager → Category tab



- The built-in categories of **Ecoview for Vet** version are **Dog, Cat, Bird, Exotics, Equine, Pre-purchase exam**.
- The built-in categories of **Ecoview for Equine** version are **Equine and Pre-purchase exam**.

Procedure Manager → Step tab

- **Step List** of the veterinary version is different from that of the human version.
- Choose each step to check the stored image processing parameter.
- Choose each step to save the information in advance such as a label, image rotation, crop, etc.



Procedure Manager → Bodypart / Projection tab

- In the veterinary version, **Bodypart** and **Projection** codes different from those of human are provided.
- The related codes are complied **SRT** (SNOMED (Systematized Nomenclature of Medicine Clinical Terms) Reference Terminology same as the codes for human.

Meaning	Alias	H..	Cod...	Desi...	V..	BodypartEx...	Body...	Meaning	Alias	H..	Cod...	Desi...	V..	ViewPosition	View
Abdomen		N	T-D4...	SRT		ABDOMEN		Caudodl...		N	R-40...	SRT		CDDI_CRPRO	
All legs		N	T-D8...	SRT		LEGS		Caudal...		N	123019	DCM		CD10DI_CRP...	
Atlantal...		N	T-15...	SRT		ATLANTOAX...		Caudocr...		N	R-10...	SRT		CDCR	
Atlanto...		N	T-15...	SRT		ATLANTOOC...		Dorso-v...	DV	N	R-40...	SRT		DV	
Bladder		N	T-74...	SRT		BLADDER		Dorsola...		N	R-40...	SRT		DL_PAMO	
Calcane...		N	T-12...	SRT		CALCANEAL...		Dorsal...		N	R-40...	SRT		D35L_PAMO	
Carpus		N	T-D0...	SRT		CARPUS		Dorsal...		N	R-40...	SRT		D40L_PAMO	
Cervical...	Cervical	N	T-11...	SRT		CSPINE		Dorsal...		N	R-40...	SRT		D60L_PAMO	
Cervico...		N	T-D0...	SRT		CTSPINE		Dorsola...		N	R-40...	SRT		DL_PLMO	
Chest		N	T-D3...	SRT		CHEST		Dorsal...		N	R-40...	SRT		D35L_PLMO	
Chest a...		N	R-FA...	SRT		CHESTABDO...		Dorsal...		N	R-40...	SRT		D40L_PLMO	
Coccyg...		N	T-11...	SRT		TAIL		Dorsal...		N	R-40...	SRT		D45L_PLMO	
Colon		N	T-59...	SRT		COLON		Dorsal...		N	R-40...	SRT		D60L_PLMO	

Procedure Manager → Species Code tab / Breed Code tab / Breed Registration Code tab

- The veterinary version provides three (3) additional tabs in the **Procedure** panel as follows.
 - **Species Code** tab – Species code management
 - **Breed Code** tab – Breed code management
 - **Breed Registration Code** tab – Breed Registration code management
- The codes registered to the three tabs are used for registering prescribed information of studied patients.

Tab	Screen
-----	--------

Species Code

Meaning	Code	Designator	Hide
homo sapiens	L-85800	SRT	N
Feline species	L-80400	SRT	N
Equine species	L-80400	SRT	N
Ovine species	L-80300	SRT	N
Porcine species	L-80500	SRT	N
Caprine species	L-80200	SRT	N
Canine species	L-80700	SRT	N
Bovine species	L-80100	SRT	N

☒ Show All Add Hide

Breed Code

Meaning	Code	Designator	Hide
Mixed breed cat	L-80A74	SRT	N
Mixed breed goat	L-80217	SRT	N
Mixed breed dog	L-8090F	SRT	N
Mixed breed horse	L-8A10F	SRT	N
Mixed breed sheep	L-8C3A	SRT	N
Mixed breed chicken	L-93791	SRT	N
Mixed breed cattle	L-88947	SRT	N
Mixed breed pig	L-88103	SRT	N
Hereford cattle superbreed	L-80139	SRT	N
Merino sheep superbreed	L-8C338	SRT	N
Africander cattle breed	L-80121	SRT	N
Arkole cattle breed	L-80122	SRT	N
Arkole-Watusi cattle breed	L-80123	SRT	N

☒ Show All Add Hide

Breed Registration Code

Meaning	Code	Design...	Hide
America Kennel Club	109200	DCM	N
America's Pet Registr...	109201	DCM	N
American Canine Ass...	109202	DCM	N
American Purebred...	109203	DCM	N
American Rare Breed...	109204	DCM	N
Animal Registry Unl...	109205	DCM	N
Animal Research Fou...	109206	DCM	N
Canadian Border Coll...	109207	DCM	N
Canadian Kennel Club	109208	DCM	N
Canadian Livestock...	109209	DCM	N
Canine Federation of...	109210	DCM	N
Continental Kennel C...	109211	DCM	N
Dog Registry of Ame...	109212	DCM	N

☒ Show All Add Hide

How to use

- The use way of codes registered in the three (3) tabs is same.
 - Click on the **Add** button to add a code to be registered newly.
 - Click on the **Hide** button to hide the code which it not used.
- Each code tab is supported the **Show / Hide** function, not deletion.
- The item that registered once cannot be deleted.
- Check the **Show All** checkbox to see the hidden items.



- Check the registered **Species** codes from <6.2 Unscheduled Panel>.

R/L Label setting

- Besides of the R / L labels, the information of **LF** (Left Front, Left Foreleg), **RF** (Right Front, Right Foreleg), **LH** (Left Hind) and **RH** (Right Hind) labels can be configured additionally from the veterinary version. (**Setting** mode → **Tool** panel → **General** tab)
- In the **Use Quick Label** option, you can add the LF, RF, LH and RH Quick Label buttons to the **Exposure** mode. (**Setting** mode → **Tool** panel → **General** tab)

Update **Tool - General**

Copy Image Option

☒ Crop ☐ Text

☐ Label ☐ Other Annotation

Label Setting

Left Label	L	Position	Top Right
Right Label	R	Position	Top Left
LF Label	LF	Position	Top Right
RF Label	RF	Position	Top Left
LH Label	LH	Position	Top Right
RH Label	RH	Position	Top Left


Use Quick Label

☒ LF / RF ☒ LH / RH

Procedure Auto Label Setting

In the **Ecoview** veterinary version, you can set a label to each step when you add steps to the procedure. The configured label is input to the image automatically when shooting each step.

- 1 Move to **Procedure Manager** → **Procedure** tab.

- 2 Click on the **Edit** button to open the **Step Editor** dialog.
 - Choose a body part from **Bodypart/Stitch Protocol**.
 - Choose a step from **Candidate**.
 - Choose a label to be added from **Label**.
 - Click on  button to add the selected items to **Procedure Item**.
 - Click on the **Update** button to save the selected items.



- The label registered in Procedure / Step is applied automatically in the order of **Procedure > Exposure > Step**.

9.4 Using Ecoview for Vehicle

- The Ecoview program can be used for the patients who take an X-ray in a vehicle as well as in the hospital.
- Choose the option **Ecoview for Vehicle** when installing **Ecoview** to use it in a vehicle.
- The composition of **Ecoview for Vehicle** is similar to its general version mostly, but the following functions are specialized for the examination in a vehicle.
 - Function for registering location and study
 - Serial radiography
 - External save function, a substitute for the DICOM sending function.
 - Barcode for registering and searching studies

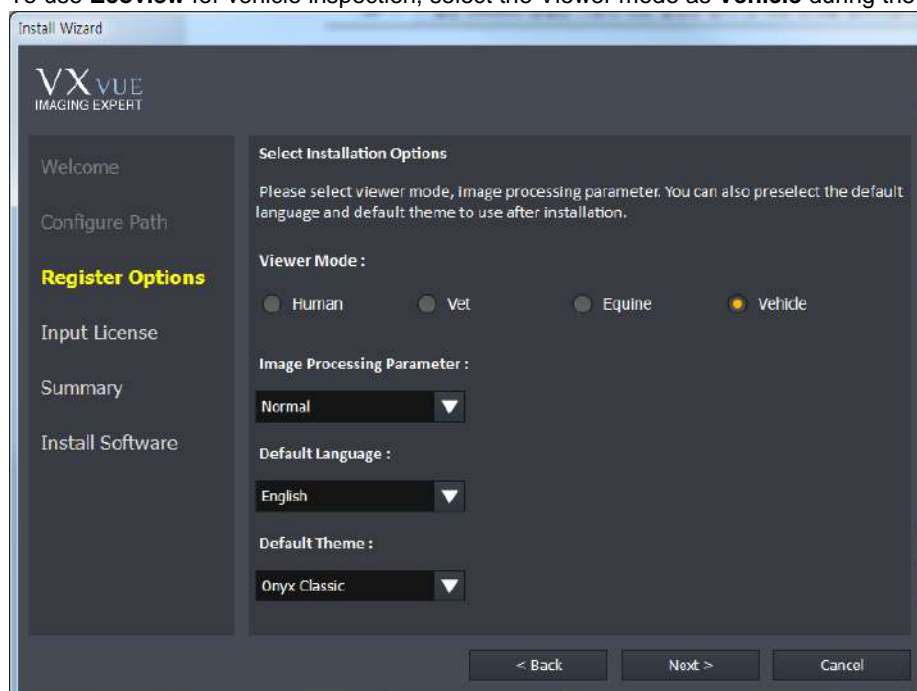
Term	Description
Vehicle	A vehicle with the radiography environment
Location	A place or institution for examination



- This chapter explains about **Ecoview for Vehicle** mainly.
- Refer to the related pages in this document for the information of functions same as those of the **Ecoview** general version.

9.4.1 Installing Ecoview for Vehicle

To use **Ecoview** for vehicle inspection, select the Viewer mode as **Vehicle** during the installation phase.

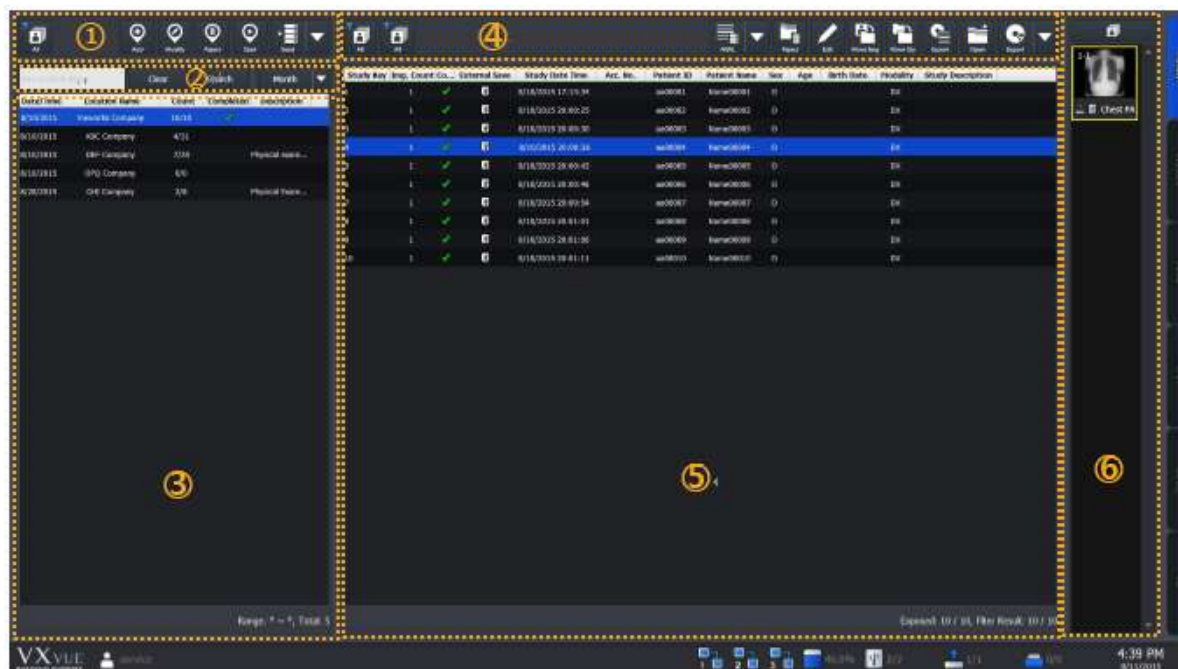


- The way to install **Ecoview for Vehicle** is the same as that of **Ecoview** general version. Refer to Installation in Ecoview Service Manual for the detailed information.

9.4.2 Location Mode

Ecoview for Vehicle registers and manages the prescribing information based on the place or institution where X-ray is taken.

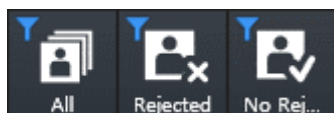
In the **Location** mode, you can use the functions for registering / managing prescribing information, as well as managing locations and the acquired images. Before taking X-rays, it is necessary to register location and the prescribing information to each location.








- The **Database** mode and the **Work** mode in **Ecoview** is combined as the **Location** mode in Ecoview for Vehicle.
- The functions in the **Database** and the **Work** mode are same as those of the **Location** mode.

1 Management Area of Location

You can add, modify or reject locations.



- Searches locations with the following conditions to indicate them on the list.
 - **All**: Indicates all locations.
 - **Rejected**: Indicates the rejected locations.
 - **No Rejected**: Indicates non-rejected locations.

Button	Function
 Add	Register a new location to take images.
 Modify	Modify the location information selected from the location list.
 Reject	Reject the location selected from the location list.
 Restore	Restore the rejected location.
 Start	Enter the exposure mode with the location selected from the location list.

- You can export the selected location by using the multi buttons as follows.



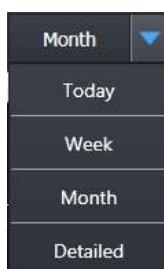
- 1 Choose location to be exported from the location list.
- 2 Click on the arrow button and choose one of the options. (**Export**, **Send**, **Multi-Send**, **Print**, **External Save**)
 - The function of each option is same as that of the **Ecoview** general version.

2 Search Area of Location

You can search the location by its name or the registered date.

Button	Function
<input type="text" value="Any Location Name"/>	Input the location name and click on the Search button to check the search result from the location list.
Clear	Removes all searched result from the location list.
Search	Input the search condition and click on the Search button to check the result from the location list.

- You can also search location by setting period as follows.



- 1 Click on the arrow button to check the options of search period.
- 2 Set the search period and click on the related button. (**Today** / **Week** / **Month**)
 - The search result is indicated on the location list.
 - All locations are indicated including studies of the scheduled date and the search period.
 - Click on the **Detailed** button to search locations by setting specific period of time.

3 Location List Area

You can check the list of generated or registered locations.

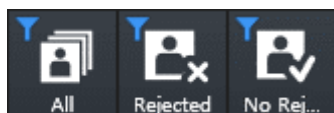
Button	Function
Date	Indicates the date and time of Scheduled Date which was set when generating the location.
Location Name	Indicates the name of the generated location.
Count	Indicates the number of study that the radiography has completed and the number of study registered in the location.
Completed	Indicates a check mark when radiography for all studies registered in the location is completed.
Description	Indicates the texts which was entered while generating the location.
Range: 8/5/2015 ~ 8/11/2015, Total: 6	Range: The period configured within the search period. Total: The total number of locations corresponded with the search condition.

4 Study Management Area

You can use the functions related to studies in the specific location and the acquired images.



- Searches the study under three types of condition and indicates the result on the study list.
 - All:** Indicates all studies.
 - Taken:** Indicates studies that the radiography has been completed.
 - Untaken:** Indicates studies that the radiography has not been completed.










- Searches the study under three types of condition and indicates the result on the study list.
 - All:** Indicates all studies.
 - Rejected:** Indicates rejected studies.
 - No rejected:** Indicates non-rejected studies.

- You can add studies to location by using the multi buttons as follows.



- 1 Choose the location to add studies from the location list.
- 2 Click on the arrow button and choose one of the options to add studies. (**Import**, **Auto**, **MWL**)

Button	Function
 Reject	Rejects the study selected from the study list.
 Restore	Restores the rejected study.
 Edit	Modifies the study information selected from the study list.
 Move Img	Moves specific images of the selected study to another study in the same location.
 Move Sty	Moves the selected study to another location.
 Export	Exports the study list information in the related location as a text file (.svc).
 Open	Checks the selected study from the Viewer mode.

- You can export the selected studies by using the multi buttons as follows.



- 1 Select a study to be exported from the study list.
- 2 Click on the arrow button and choose one of the options to export the study. (**Export, Send, Multi-Send, Print, External Save**)
- 3 The function of each option is same as that of the **Ecoview** general version.

5 Study List Area

You can check all study lists of the selected location.

Study Key	Img. Count	Co...	External S...	Study Date Time	Acc. No.	Patient ID	Patient Name	Sex	Age	Birth Date	Modality	Study Description
42	2	✓		8/10/2015 20:31:02	105710	08105710	qscju	M	0Y	8/10/2015	TG	CHEST LAT (LT)
32	1	✓		8/10/2015 20:25:56	105810	08105810	idwys	F	0Y	8/10/2015	TG	CHEST LAT (LT)
33	1	✓		8/10/2015 20:26:58	105809	08105809	kiahf	F	0Y	8/10/2015	TG	CHEST LAT (LT)
34	1	✓		8/10/2015 20:27:24	105808	08105808	lcisc	F	0Y	8/10/2015	TG	CHEST LAT (LT)
35	1	✓		8/10/2015 20:28:02	105807	08105807	axdoa	F	0Y	8/10/2015	TG	CHEST LAT (LT)
36	1	✓		8/10/2015 20:28:50	105806	08105806	djklf	M	0Y	8/10/2015	TG	CHEST LAT (LT)
43	1	✓		8/10/2015 20:32:53	105709	08105709	lghrw	F	0Y	8/10/2015	TG	CHEST LAT (LT)
37	1	✓		8/11/2015 10:59:04	105805	08105805	ddexp	M	0Y	8/10/2015	TG	CHEST LAT (LT)
38	1	✓		8/11/2015 11:45:31	105804	08105804	hqcbs	F	0Y	8/10/2015	TG	CHEST LAT (LT)
39	0			8/10/2015 20:07:10	105803	08105803	vjqrf	M	0Y	8/10/2015	TG	CHEST LAT (LT)
40	0			8/10/2015 20:07:10	105802	08105802	lfytt	M	0Y	8/10/2015	TG	CHEST LAT (LT)
41	0			8/10/2015 20:07:10	105801	08105801	ndlru	F	0Y	8/10/2015	TG	CHEST LAT (LT)
44	0			8/10/2015 20:07:10	105708	08105708	bchux	F	0Y	8/10/2015	TG	CHEST LAT (LT)
45	0			8/10/2015 20:07:10	105707	08105707	tkrnf	M	0Y	8/10/2015	TG	CHEST LAT (LT)
46	0			8/10/2015 20:07:10	105706	08105706	cwwdg	M	0Y	8/10/2015	TG	CHEST LAT (LT)
47	0			8/10/2015 20:07:10	105705	08105705	atjwv	F	0Y	8/10/2015	TG	CHEST LAT (LT)
48	0			8/10/2015 20:07:10	105704	08105704	beytw	F	0Y	8/10/2015	TG	CHEST LAT (LT)
49	0			8/10/2015 20:07:10	105703	08105703	apref	F	0Y	8/10/2015	TG	CHEST LAT (LT)
50	0			8/10/2015 20:07:10	105702	08105702	yhgrr	M	0Y	8/10/2015	TG	CHEST LAT (LT)
51	0			8/10/2015 20:07:10	105701	08105701	kowvx	M	0Y	8/10/2015	TG	CHEST LAT (LT)

Exposed: 9 / 20, Filter Result: 20 / 20

- **Exposed:** Number of studies that have been taken images / Whole number of studies
- **Filter Result:** Number of studies that have been searched with specific conditions / Whole number of studies

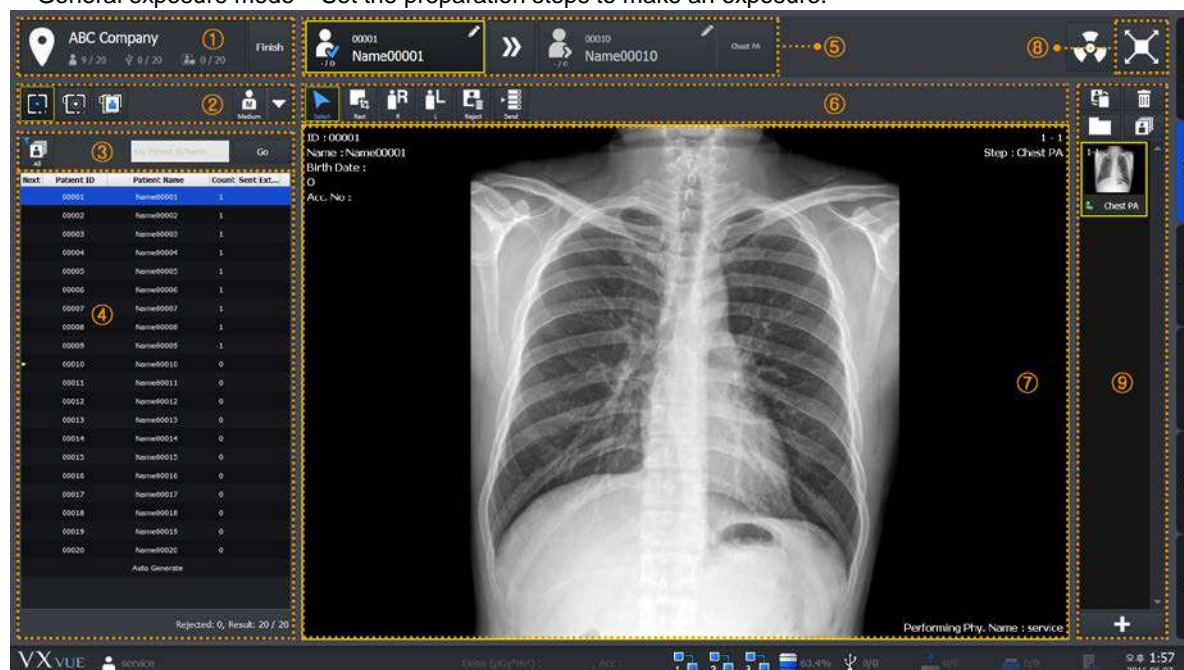
6 Thumbnail Area

You can check the thumbnail images of studies selected from the study list.

9.4.3 Exposure Mode

You can make an exposure from the **Exposure** mode. The **Exposure** mode supports a general exposure and macro exposure modes.

- General exposure mode – Set the preparation steps to make an exposure.



1 Location Information Area

You can check location names and the following information.

Image	Function
	Indicates the number of studies that have been taken images.
	Indicates the number of studies stored to the external device.
	Indicates the number of studies transmitted to the DICOM storage.
	Finished the shooting of location.

2 Area for Selecting the Detector and Patient Size

You can select which type of detector to use and the patient size.

- Check the available detector.



- Choose the detector to be used for taking images.

- Patient size icon (Multi-buttons)



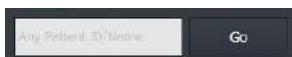
- 1 Check the patient size to be shot.
- 2 Click on the arrow button and select one of the buttons. (**Large, Medium, Small, Ped**)

3 Area for Searching Patients

You can search studies from the study list of patients in the related location.



- Searches the study under the two conditions and indicate the result in the area of study list of patients.
 - **All**: Indicates both taken and untaken studies.
 - **Untaken**: Indicates the untaken studies only.



- Searches specific studies with the patient ID or name.
 - Input the patient ID or name and click on the **Go** button.
 - Check the search result from the study list of patients.

4 Study List of Patients

You can check the study list of patients registered in the related location.

5 Patient Order for Shooting Images

You can check the study information of the patient being taken and to be taken.

6 Quick Access Tool Area

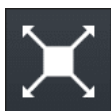
You can adjust images with the tool buttons registered manually.

- The tools in Quick Access Tool area can be registered from the **Setting** mode.

7 Image View Area

You can check the images from the image view area.

8 Move to the Macro Exposure Mode

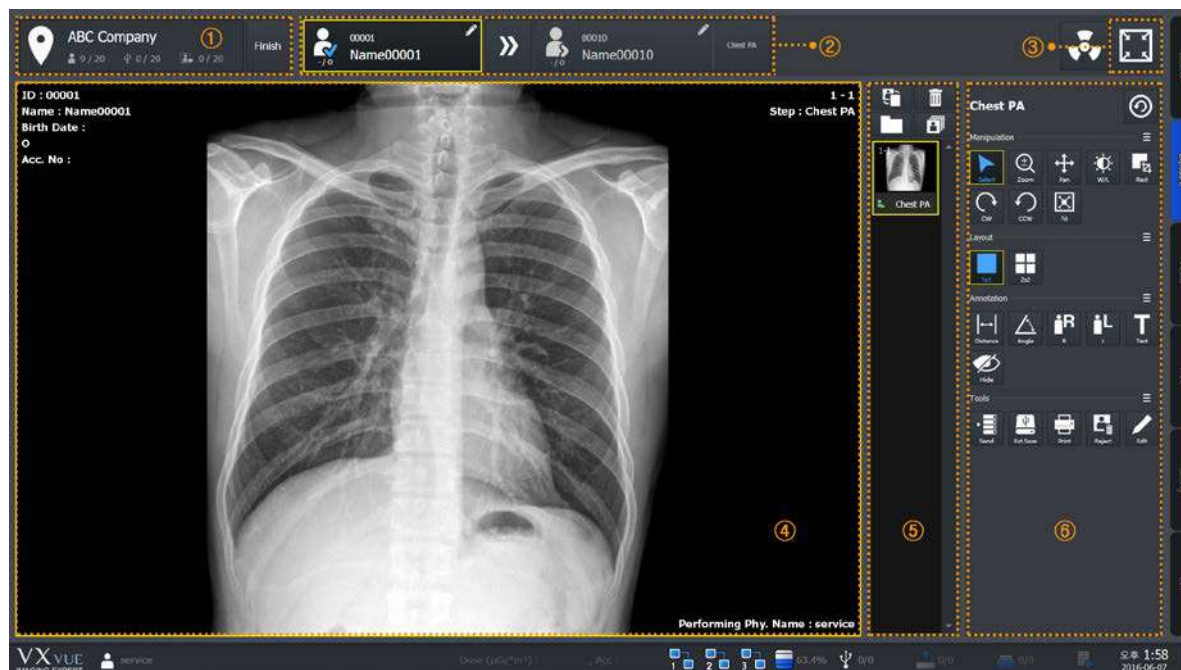


- Click on the **Maximum** button to switch the screen to the macro exposure mode.

9 Thumbnail Area

You can check thumbnail images from the thumbnail area. When you select a thumbnail image, it displays on the image view area.

- Macro Exposure mode: You can take and adjust images by expanding the image view area.



1 Location Information Area

You can check the name of location where the images are taken and the following information.

Image	Function
	Indicates the number of studies that have been taken images.
	Indicates the number of studies stored to the external device.
	Indicates the number of studies transmitted to the DICOM storage.
	Finishes shooting in the location.

2 Patient Order for Shooting Images

You can check the study information of the patient being taken and to be taken.

3 Move to the General Exposure Mode



- Click on the **Minimum** button to switch the screen to the general exposure mode.

4 Image View Area

You can check the acquired images from the image view area.

5 Thumbnail Area

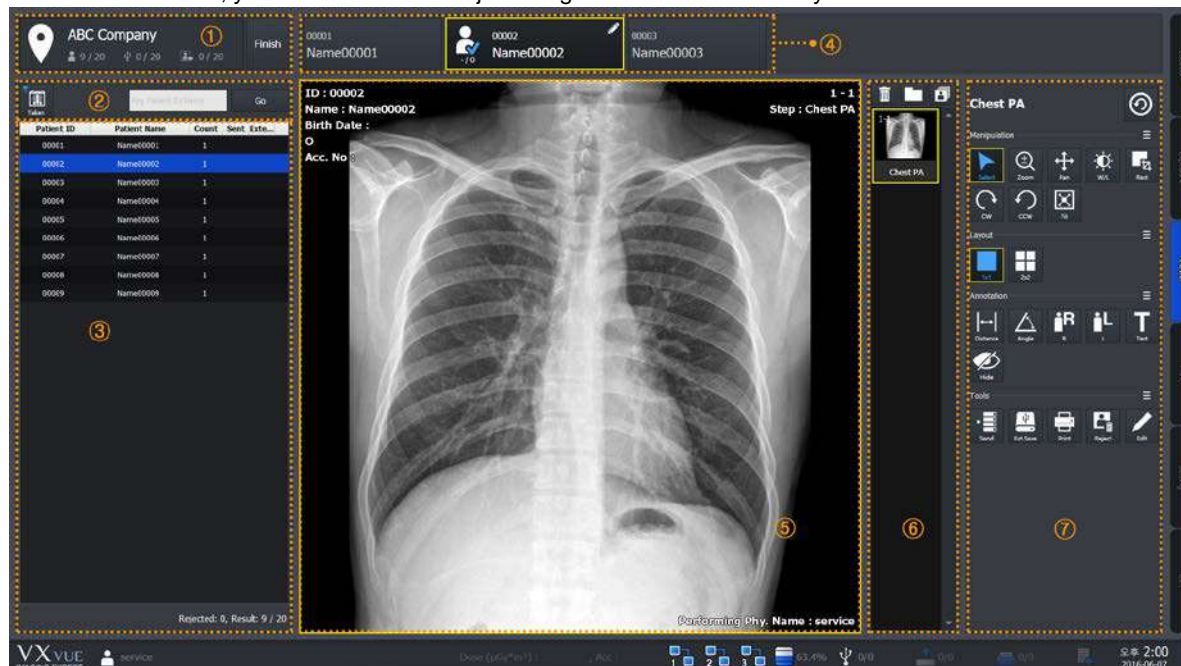
You can check thumbnail images from the thumbnail area. When you select a thumbnail image, it displays on the image view area.

6 Image Adjustment Tools

You can use various tools to adjust images.

9.4.4 Viewer Mode

In the **Viewer** mode, you can search and adjust images of the selected study.



1 Location Information Area

You can check the name of location where the images are taken and the following information.

Image	Function
	Indicates the number of studies that have been taken images.
	Indicates the number of studies stored to the external device.
	Indicates the number of studies transmitted to the DICOM storage.
	Finishes shooting in the location.

2 Area for Searching Patients

You can search studies from the study list of patients in the related location.



- Searches the study under the two conditions and indicate the result in the area of study list of patients.
 - All:** Indicates both taken and untaken studies.
 - Untaken:** Indicates the untaken studies only.



- Searches specific studies with the patient ID or name.
 - Input the patient ID or name and click on the **Go** button.
 - Check the search result from the study list of patients.

3 Study List of Patients

You can check the study list of patients registered in the related location.

4 Patient Order for Shooting Images

You can check the patient finished shooting, being shot, and to be shot X-ray.

5 Image View Area

You can check the acquired images from the image view area.

6 Thumbnail Area

You can check thumbnail images from the thumbnail area. When you select a thumbnail image, it displays on the image view area.

7 Image Adjustment Tools

You can use various tools to adjust images.

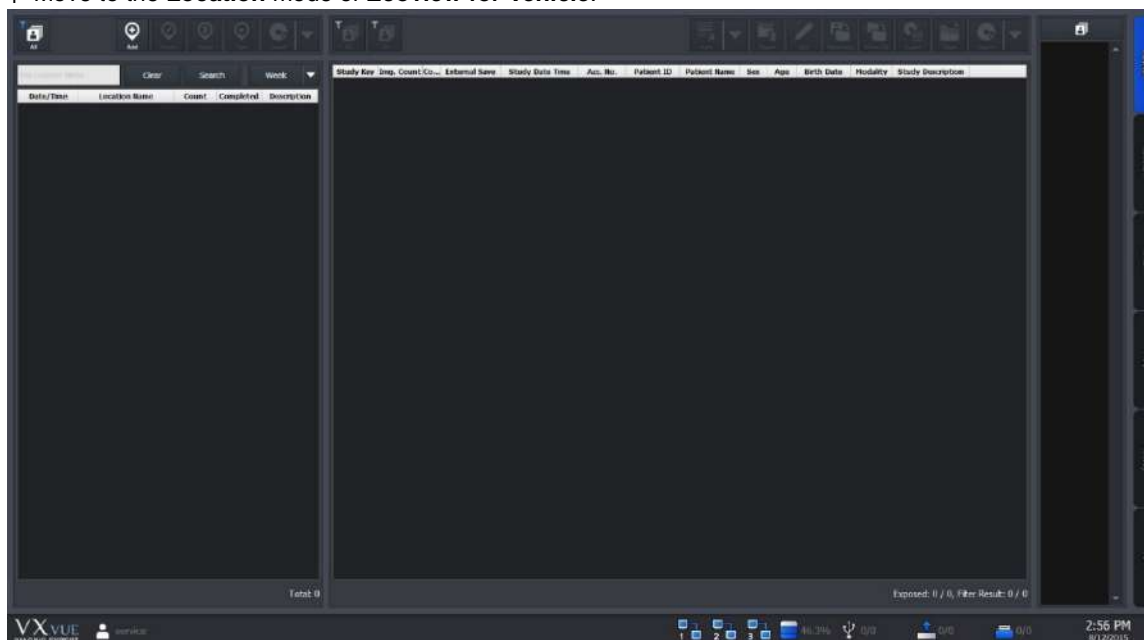
Panel	Description
Tools	Available to use the image adjustment tools.
Process	Available to use the image processing tools.
Label	Available to use the labelling tools on the image.

9.4.5 Registering the Prescribing Information

In **Ecoview for Vehicle**, the prescribing information of patients is registered based on the shooting location or institution. Therefore, you should register the location first and the prescribing information next before taking images under **Ecoview for Vehicle**.

1 How to Generate Location

1 Move to the **Location** mode of **Ecoview for Vehicle**.



2 Click on the **Add** button on the left top of the location management area.



- Refer to <9.4.2 Location Mode> for the detailed information about the location management area.

3 Choose the step information to acquire images and input the location information to **Location Info** dialog.


4 Click on the **Add** button to complete generating location.

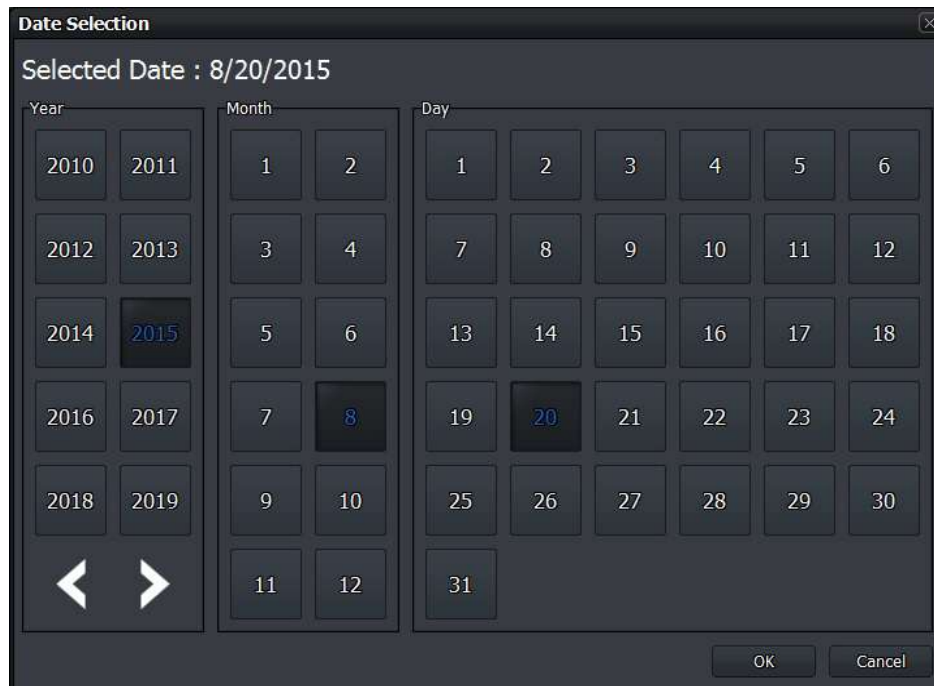
Item	Input Method	Note
Location Name	Manual	The institution where a patient belongs.
Scheduled Date	Manual	Reserved date for shooting
Address	Manual	Address of the institution
Telephone	Manual	Contact number of the institution
Description	Manual	Detailed information of the additional shooting



- The location name can be entered up to 64 letters, excluding some special texts (^ * ? < > / \ , .) which cannot be used as a file name.
- The address can be entered up to 64 letters.
- The telephone number can be entered up to 16 letters.
- The description can be entered up to 1024 letters.


How to Enter the Scheduled Date

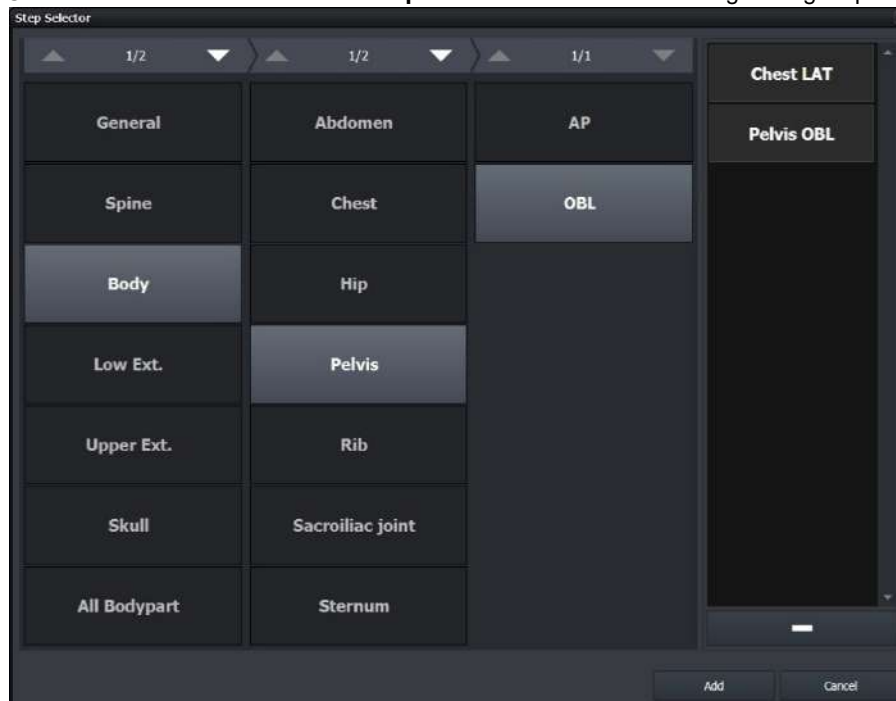
Click on  at the right side of **Scheduled Date** to open the **Date Selection** window. Choose the reserved date and click on the **OK** button to close.




How to Register Step


You can register steps by using the related location to prepare shooting.

- 1 Open the **Step Selector** window by clicking on  button at the bottom to add steps from the step list in **Location Info**, other than the default step list.
- 2 Select the desired bodypart and projection to add steps.
- 3 Click on the **Add** button on the **Step Selector** window to finish registering steps.



- Additional explanation of the **Step Selector** window
 - Choose the step information at the right and click on  button to remove the added step from the list.
 - Click on the **Cancel** button to close the **Step Selector** window if you do not want to add all steps in the step list to the location.
- Additional explanation of the **Location Info** window
 - The initial state of step list is set as **Default Step List** when generating the first location.

Refer to 'How to change the Default Step List' in <9.4.9 Additional Functions> for changing the state.

- Choose a step from the step list and click on  button to remove the step.

4 Check the newly created location in the list as below.

Date/Time	Location Name	Count	Completed	Description
8/20/2015	Viewworks Co.,Ltd	0/0		Check-Up for ...

2 How to Register Study

- 1 Click the new location from the location list.
- 2 Click on the multi button to add a study in the study management area of the **Location** mode.



- Refer to <9.4.2 Location Mode> for the detailed information about the study management area.

- 3 Choose one of the three options to add a study.

How to Add Study to Import Study

Click on the **Import Study** button to open the **Import Patient Order** window.

- You can also add a study to location by recalling the prescribing information saved as the text file (Unicode).



- This process of adding study to **Import Study** is the same as that of the general version of **Ecoview**. Refer to <5.3.1 Tools in Reserved Panel> for more information.

Click on the **Auto Generate Study** button to open the following window. You can add the patient information by the rules manually.

Auto Generator

Info

Length: 5

ID Prefix: Viewworks
ex) Viewworks00001 ~ Viewworks00050

Name Prefix: Patient
ex) Patient00001 ~ Patient00050

Study Count: 50

Generate Cancel

Item	Meaning	Input Method	Description
Length	Digit	Select	Digits tagged with the patient ID and name
ID Prefix	Patient ID Prefix	Manual	Texts attached in front of the patient ID.
Name Prefix	Patient Name Prefix	Manual	Texts attached in front of the patient name.
Study Count	Number of Study	Manual	Number of study to be generated
Generate	Generates Study	Button	Generates a study
Cancel	Cancels generating a study.	Button	Closes the window without generating a study.



- Choose the length from 5 ~10.
- The default value of name prefix is '**Name**' when the **Auto Generator** window is opened for the first time.
- The maximum number of letters of the patient ID and patient name should be less than 64.
- Refer to the texts written on 'ex)' of the window to check the patient name and ID in advance.

How to Add Study to Modality Worklist

Click on the **Modality Worklist** button to open the **Worklist** window as follows. You can import the prescribing information by using DICOM worklist.

Worklist

Any Patient's Name

Any Accession Number

Any Station Name

Any Modality

Any Station AE Title

Today Week Month Search

Clear

Mod

Patient ID	Patient Name	Sex	Age	Birth Date	Acc. No.	Study Description	Scheduled Date/Time	Modality
08105810	idwys	F	3D	8/10/2015	105810	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105809	klahf	F	3D	8/10/2015	105809	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105808	leisc	F	3D	8/10/2015	105808	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105807	axdao	F	3D	8/10/2015	105807	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105806	djkh	M	3D	8/10/2015	105806	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105805	ddamp	M	3D	8/10/2015	105805	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105804	hqohs	F	3D	8/10/2015	105804	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105803	vlqrf	M	3D	8/10/2015	105803	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105802	lfydt	M	3D	8/10/2015	105802	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105801	ndlrn	F	3D	8/10/2015	105801	CHEST LAT (LT)	8/10/2015 19:49:58	TG
08105710	qscju	M	3D	8/10/2015	105710	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105709	lghrw	F	3D	8/10/2015	105709	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105708	lchlx	F	3D	8/10/2015	105708	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105707	tkrmf	M	3D	8/10/2015	105707	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105706	cwwdg	M	3D	8/10/2015	105706	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105705	dtjwv	F	3D	8/10/2015	105705	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105704	bqybv	F	3D	8/10/2015	105704	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105703	apref	F	3D	8/10/2015	105703	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105702	yhgrr	M	3D	8/10/2015	105702	CHEST LAT (LT)	8/10/2015 19:49:57	TG
08105701	kwvux	M	3D	8/10/2015	105701	CHEST LAT (LT)	8/10/2015 19:49:57	TG

Add All Add Selected Cancel

Item	Input Method	Description
Add All	Button	Adds all searched studies.
Add Selected	Button	Adds the selected studies only.
Cancel	Button	Closes the window without adding studies.



- This process is same as that of the **Scheduled** panel in **Ecoview** general version, using the DICOM worklist. (Refer to <5.1 Scheduled Panel (Worklist)>)
- The **Open**, **Emergency**, **Send to Detector**, **Add to Local** buttons in **Ecoview** general version are not indicated on the **Ecoview for Vehicle**.

4 Check the newly added studies in the study list area.

Study Key	Img. Count Co...	External Save	Study Date Time	Acc. No.	Patient ID	Patient Name	Sex	Age	Birth Date	Modality	Study Description
72	0		8/12/2015 18:33:38		Viewworks00001	Patient00001	O			DX	
73	0		8/12/2015 18:33:38		Viewworks00002	Patient00002	O			DX	
74	0		8/12/2015 18:33:38		Viewworks00003	Patient00003	O			DX	
75	0		8/12/2015 18:33:38		Viewworks00004	Patient00004	O			DX	
76	0		8/12/2015 18:33:38		Viewworks00005	Patient00005	O			DX	
77	0		8/12/2015 18:33:38		Viewworks00006	Patient00006	O			DX	
78	0		8/12/2015 18:33:38		Viewworks00007	Patient00007	O			DX	
79	0		8/12/2015 18:33:38		Viewworks00008	Patient00008	O			DX	
80	0		8/12/2015 18:33:38		Viewworks00009	Patient00009	O			DX	
81	0		8/12/2015 18:33:38		Viewworks00010	Patient00010	O			DX	
82	0		8/12/2015 18:33:38		Viewworks00011	Patient00011	O			DX	
83	0		8/12/2015 18:33:38		Viewworks00012	Patient00012	O			DX	
84	0		8/12/2015 18:33:38		Viewworks00013	Patient00013	O			DX	
85	0		8/12/2015 18:33:38		Viewworks00014	Patient00014	O			DX	
86	0		8/12/2015 18:33:38		Viewworks00015	Patient00015	O			DX	
87	0		8/12/2015 18:33:38		Viewworks00016	Patient00016	O			DX	
88	0		8/12/2015 18:33:38		Viewworks00017	Patient00017	O			DX	
89	0		8/12/2015 18:33:38		Viewworks00018	Patient00018	O			DX	
90	0		8/12/2015 18:33:38		Viewworks00019	Patient00019	O			DX	
91	0		8/12/2015 18:33:38		Viewworks00020	Patient00020	O			DX	
92	0		8/12/2015 18:33:38		Viewworks00021	Patient00021	O			DX	
93	0		8/12/2015 18:33:38		Viewworks00022	Patient00022	O			DX	
94	0		8/12/2015 18:33:38		Viewworks00023	Patient00023	O			DX	
95	0		8/12/2015 18:33:38		Viewworks00024	Patient00024	O			DX	

9.4.6 Making an Exposure

You can take images after generating a location and registering studies in the location. Be sure to check if the location and prescribing information are registered before taking images.

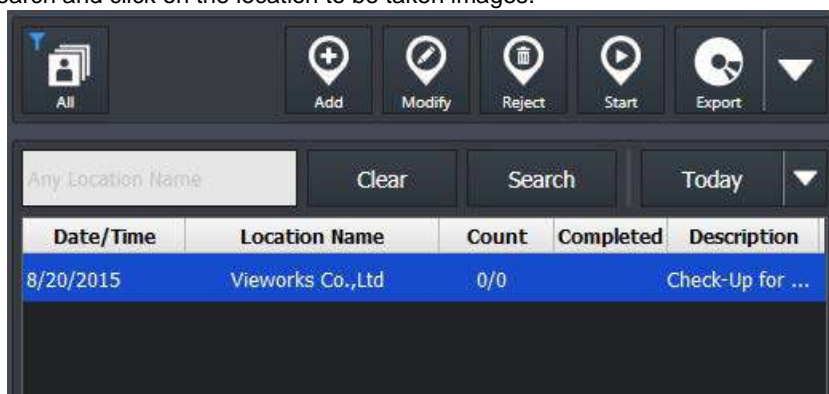


- The shooting process in **Ecoview for Vehicle** is same as that of the **Ecoview** general version. Refer to <How to Shoot Images> for the detailed information.
- This chapter gives an instruction about the functions of **Ecoview for Vehicle** mainly.

1 Entering to the Exposure Mode

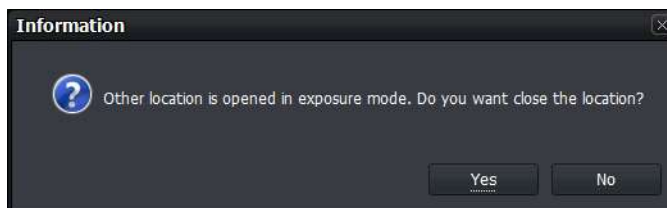
Explains the way to enter the **Exposure** mode for taking images.

- 1 Go to the **Location** mode in **Ecoview for Vehicle**.
- 2 Search and click on the location to be taken images.



- Refer to 'Search Area of Location' in <9.4.2 Location Mode> for the information on how to search locations.

- 3 Click on the **Start** button on the left top in the management area to enter the **Exposure** mode. If the other location is being shot images, close the location first and then enter the **Exposure** mode.

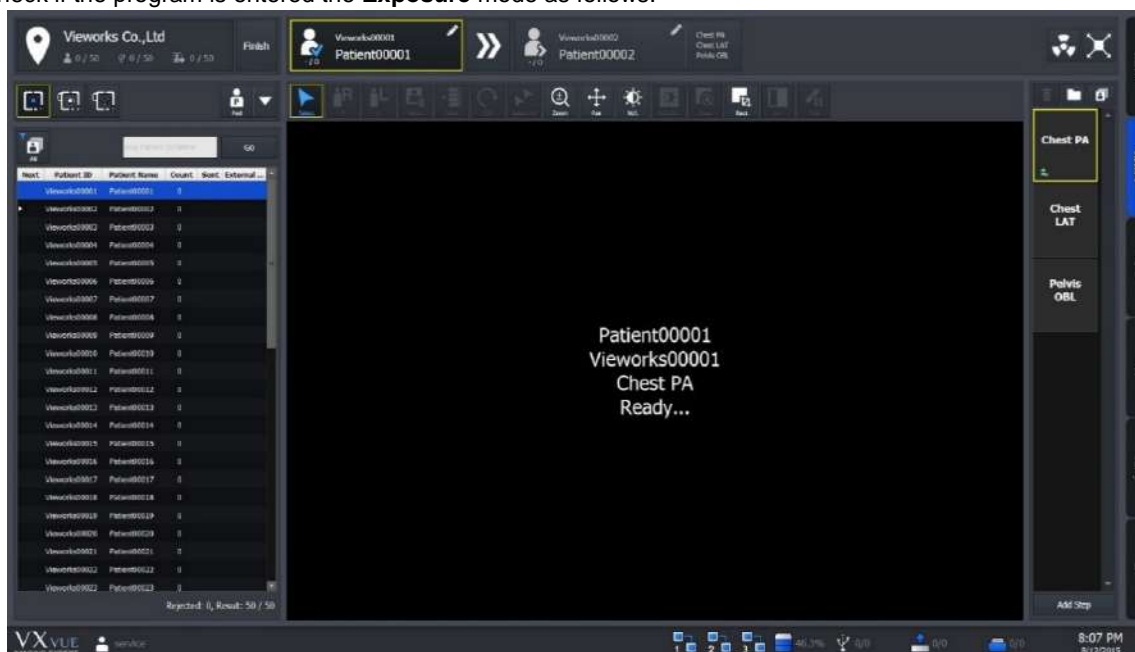


- In the **Exposure** mode, you cannot take images from more than two locations at the same time.



- You can also enter the **Exposure** mode by double-clicking the location to take images on the location list.

4 Check if the program is entered the **Exposure** mode as follows.



- Refer to <9.4.3 Exposure Mode> for the information about composition of the **Exposure** mode.

5 Choose the detector to take images.

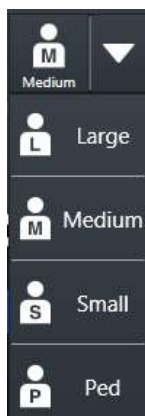


- The icons are showed as many as the number of detectors available to make an exposure. Choose a desired icon to process the exposure.
- A yellow frame is indicated around the selected detector icon.



- The detector icons are showed differently depending on each detector model. Refer to <10.6.4 Detector Information Display Icon> for the information of detector icons.

6 Choose the patient size.

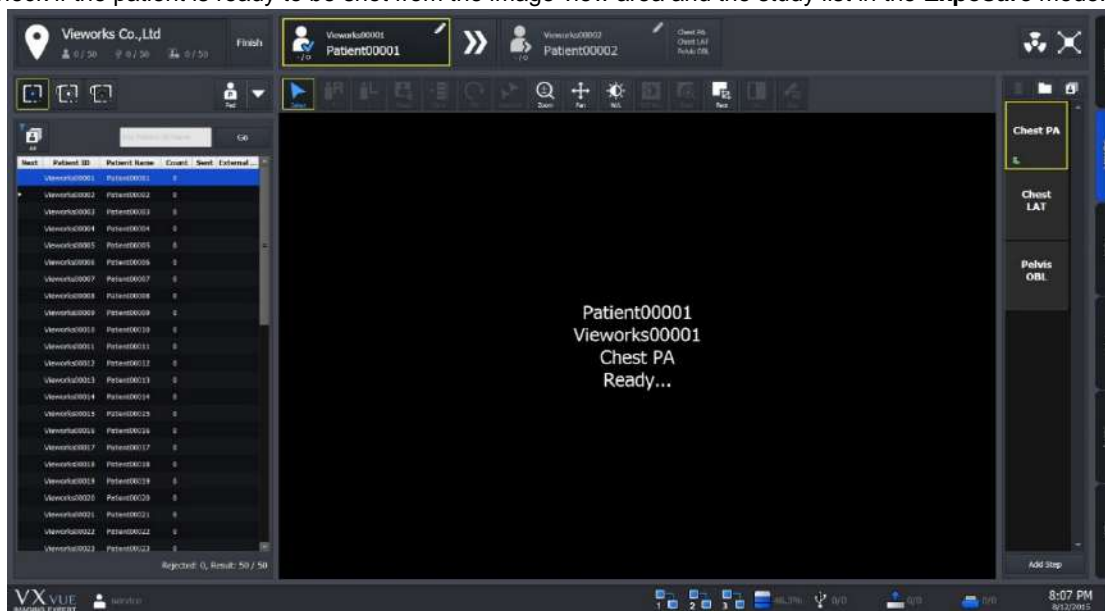


- 1 Check the patient size to be shot.
- 2 Click on the arrow button and select one of the buttons. (**Large, Medium, Small, Ped**)



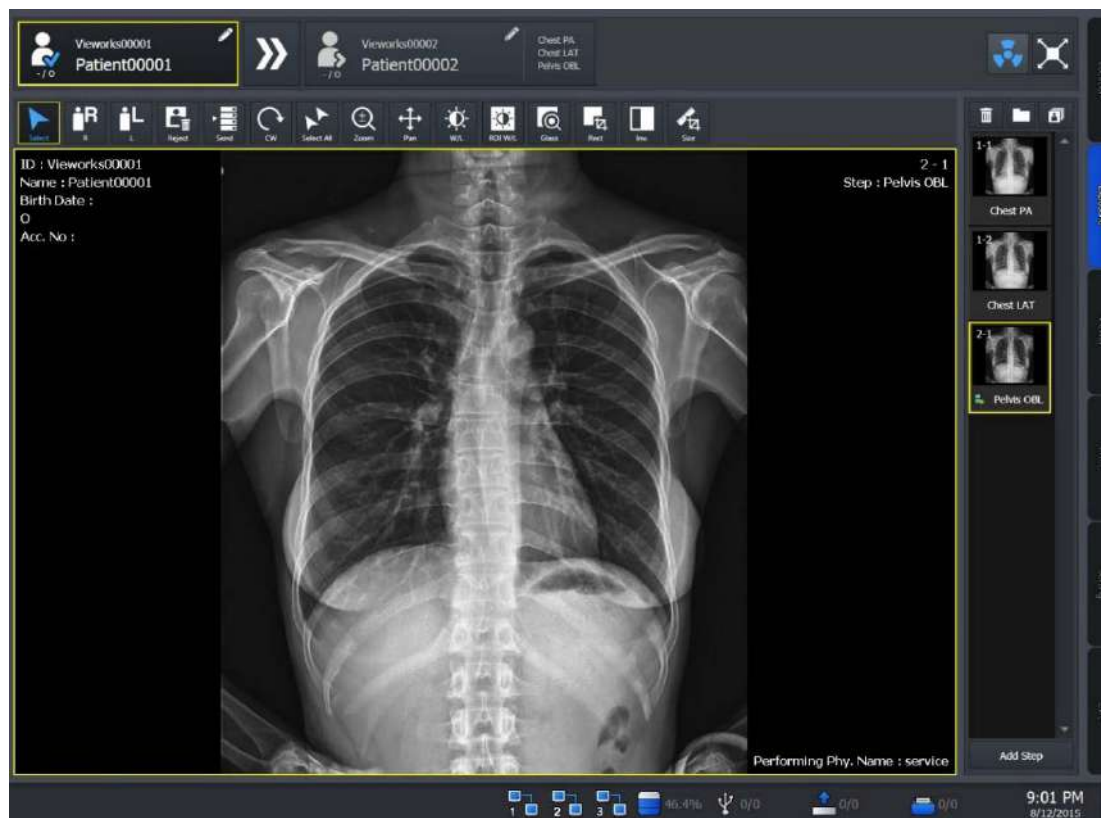
- Refer to <6.4 Selecting Patient Size> for the detailed information about selecting the patient size.

- 7 Check if the patient is ready to be shot from the image view area and the study list in the **Exposure** mode.

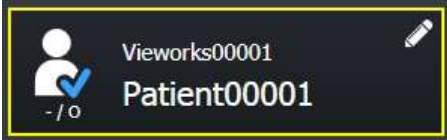

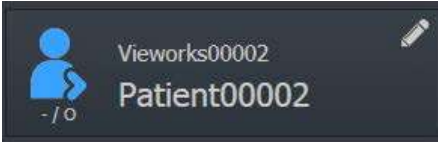


- **Ecoview for Vehicle** supports continuous shooting specialized for the patients examined in a vehicle.
- When shooting for steps in the study is finished, the screen is converted to standby status for the next patient automatically.
- If you want to start shooting a study in the middle of the list, click the related study or search it from the search field.

- 8 Press the hand switch to start shooting images.
- 9 Complete the shooting for all steps in the selected studies.



10 Check the ready status of the next patient from the following area located at the top of the **Exposure** mode screen.

Image	Description
	<ul style="list-style-type: none"> Checks the information about the current study. <ul style="list-style-type: none"> ▫ Patient name, patient ID, age, gender You can modify the information by clicking on the pencil icon.
	<ul style="list-style-type: none"> If the two icons are activated, the screen is shifted to standby status for the next patient automatically after shooting all steps in the current study. Click on the turning button of auto exposure to cease the next shooting of a study automatically. If the two icons are deactivated, the screen is not shifted to the next study but the steps are added to the current study after shooting all steps in the study and trying to take images again.
	<ul style="list-style-type: none"> If the Auto Select Next Study icon is activated and the steps in the current study are completed shooting, the next patient icon blinks.


11 Continue the shooting of all studies in the location.



- If you want to stop shooting images, click on the **Finish** button at the left top of the location information area to restart shooting later.

12 Click on the **Finish** button to enter the **Location** mode after shooting images for all studies.

- When you complete shooting images for all studies in the location, the **Auto Generate** item is selected automatically to keep shooting.




Next	Patient ID	Patient Name	Count	S...	E...
	00001	Name00001	1		
	00002	Name00002	1		
	00003	Name00003	1		
	00004	Name00004	1		
	00005	Name00005	0		
	00006	Name00006	0		
		Auto Generate			Study List

13 Check if the shooting is completed from the location list in the **Location** mode.

8/20/2015	Vieworks Co.,Ltd	10/10	✓	Check_up For...
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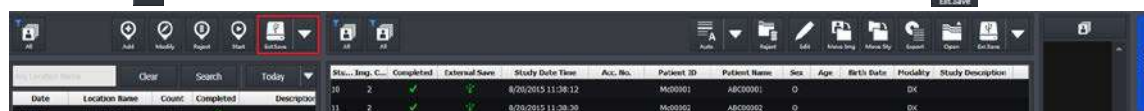
- The 'Completed' part in the Location list area is changed as  after taking images of all studies in the location.

9.4.7 Saving Images to the External Path

If the images acquired in a vehicle cannot be made DICOM transmission, you can save them to the external storage media or the external route.

Saving as a unit of location

- Click on  button at the left top in the **Location** mode and click on **Ext.Save** icon .



Stu...	Imp. C...	Completed	External Save	Study Date Time	Acc. No.	Patient ID	Patient Name	Sex	Age	Birth Date	Modality	Study Description
Date	Location Name	Count	Completed	Description								
8/20/2015	Vieworks Co.,Ltd	10/10	✓	Check_up For...								

- Save all images in the location according to the options preset in the **Setting** mode.



- Refer to External Save Menu in Ecoview Service Manual for the detailed information about the applied options when saving images with the **External Save** function.

Saving as a unit of image



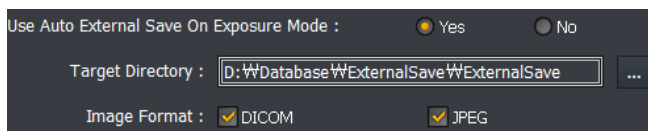
- Click on the **External Save** button to save all or selected images of the study to the pre-specified path.
 - This button is located at the right top of the **Location** mode and in the tools of **Macro Exposure** mode / **Viewer** mode.

9.4.8 Saving Images to the External Route Automatically

While the images are being taken, the **External Save** function is applied automatically according to the preset options.

How to set the External Save function automatically

- You can set the option to set the **External Save** function from the following path.
 - Setting** mode → **System** panel → **External Save** tab



- Set the **Use Auto External Save on Exposure Mode** option as **Yes**.
- **Target Directory:** Click on **...** to set the storage path of images.
 - Default path: Database folder path\ExternalSave
 - Generation rule of the folder when saving images to external storage: \ ExternalSave \ Location Name_Location Scheduled Date[YYYYMMDD]_Location Key

D:\Database\ExternalSave\Test3_20150721_3



- Since External Save is performed in background, it can be carried out simultaneously with other tasks.
- The writable and readable media (USB, HDD, pre-configured network drive) can be used only as the external storage.
 - You cannot use an optical disk such as CD-ROM.

- **Image Format:** Set the image format to save the images to the external device.
- Be sure to click on **Update** button to save the changed settings.



- Refer to External Save Menu in Ecoview Service Manual for the information about external save function.

How to Use the Automatic External Save

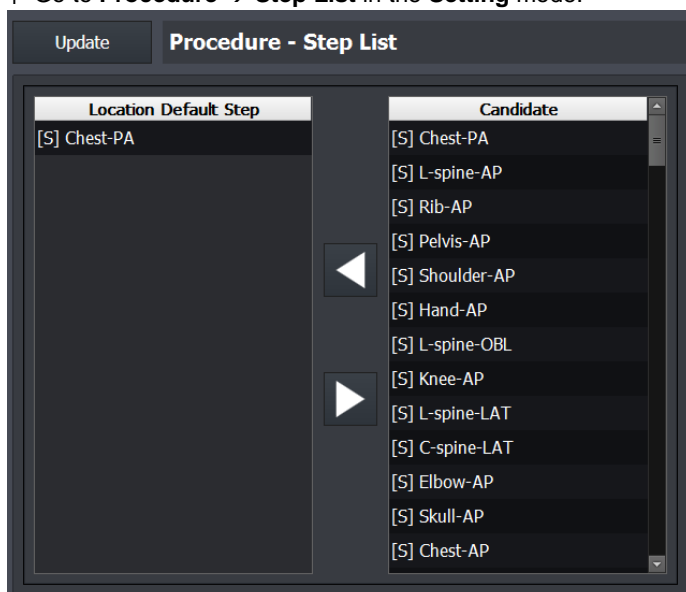
- The External Save function is applied automatically when selecting another study in the location, or ending the location.

9.4.9 Additional Functions

This chapter explains about the additional functions of **Ecoview for Vehicle**.

How to Change the Default Step List

- 1 Go to **Procedure** → **Step List** in the **Setting** mode.



- 2 Choose a step to add to the default step list from **Candidate** at the left.

3 Click on the right arrow button to add the step to **Location Default Step**.

4 Click on the **Add** button at **Location Info** to check the added step.

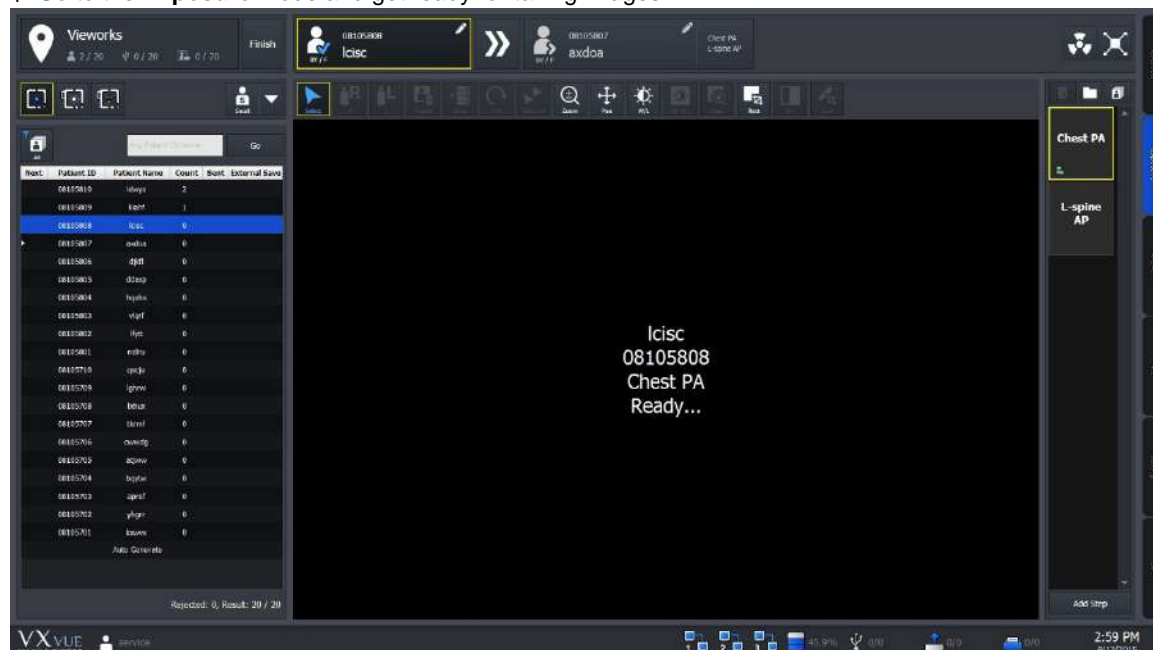


- You can register up to 10 steps to **Default Step List**.
- Click on the left arrow button at **Setting** → **Procedure Manager** → **Step List** to delete steps in **Default Step List**.

How to Search and Add Studies using Barcode

You can search and add studies from the **Exposure** mode by using a barcode reader.

1 Go to the **Exposure** mode and get ready for taking images.



2 You can search studies or indicate patient ID / patient name you want to add through the barcode reader.

3 With the entered barcode, search studies in the location which is ready for being taken images.

4 The studies are searched in turn, and the one matched with the condition is selected automatically.


- 5 If there is no matched study in the location, a new study is generated and entered exposure ready state automatically.
 - The patient ID of the new study is the entered barcode.
- 6 Start shooting images.

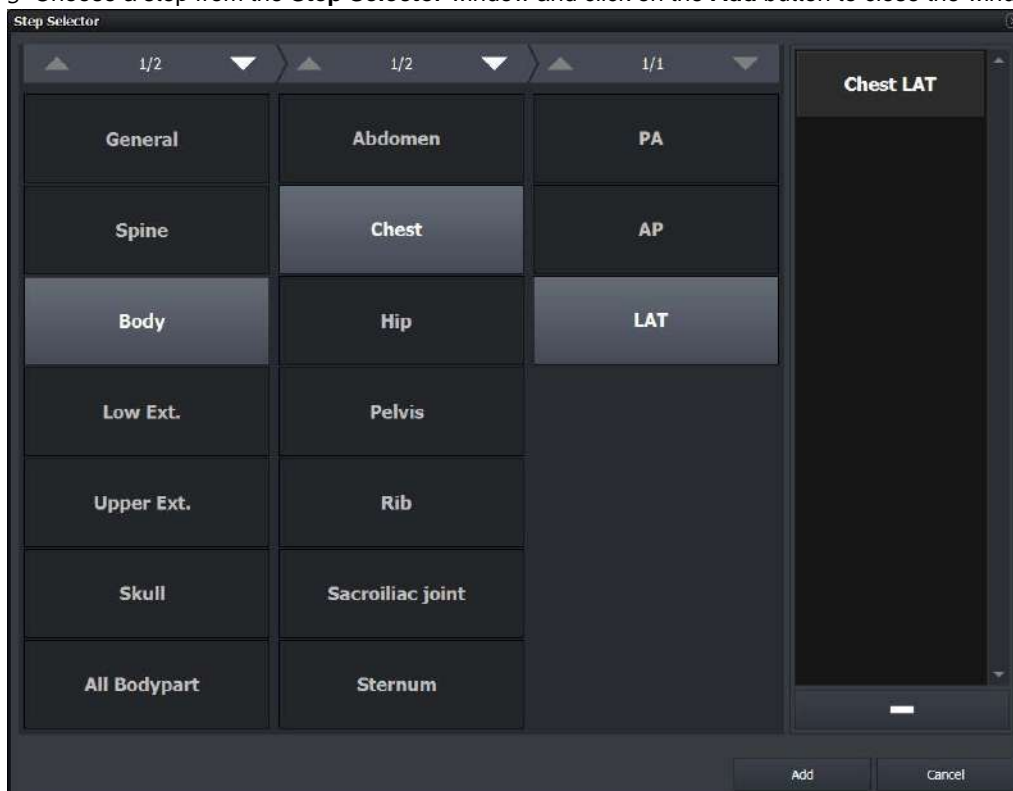


- Use this function by entering barcodes only to search studies.
- It is not allowed to search the barcode partially, and it works in the in the **Exposure** mode only.
- The minimum number of input letters is 5. (Numbers and alphabets are allowed only)

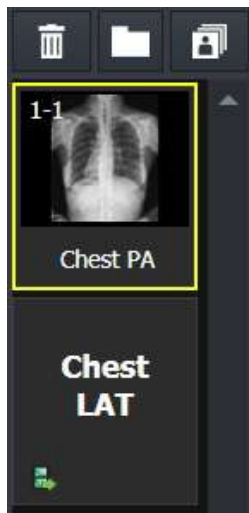
How to Add Steps while Shooting Images

You can add steps while shooting images as follows.

- 1 Choose a study from the study list to add steps while shooting images in the **Exposure** mode.
- 2 Click on  at the bottom of the thumbnail area.
- 3 Choose a step from the **Step Selector** window and click on the **Add** button to close the window.



- 4 Check the added step in the thumbnail area. (ex. Check LAT)



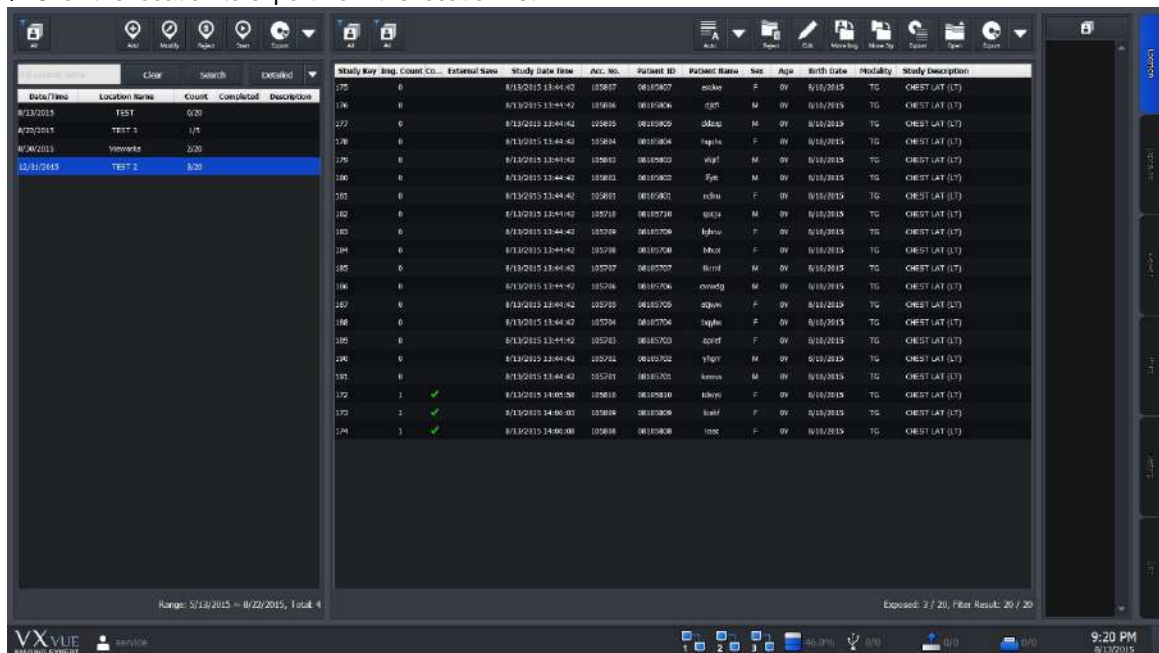
5 Click on the added step to proceed shooting continuously.


How to Export Study List

You can export the information of study list included in the specific location as a file.

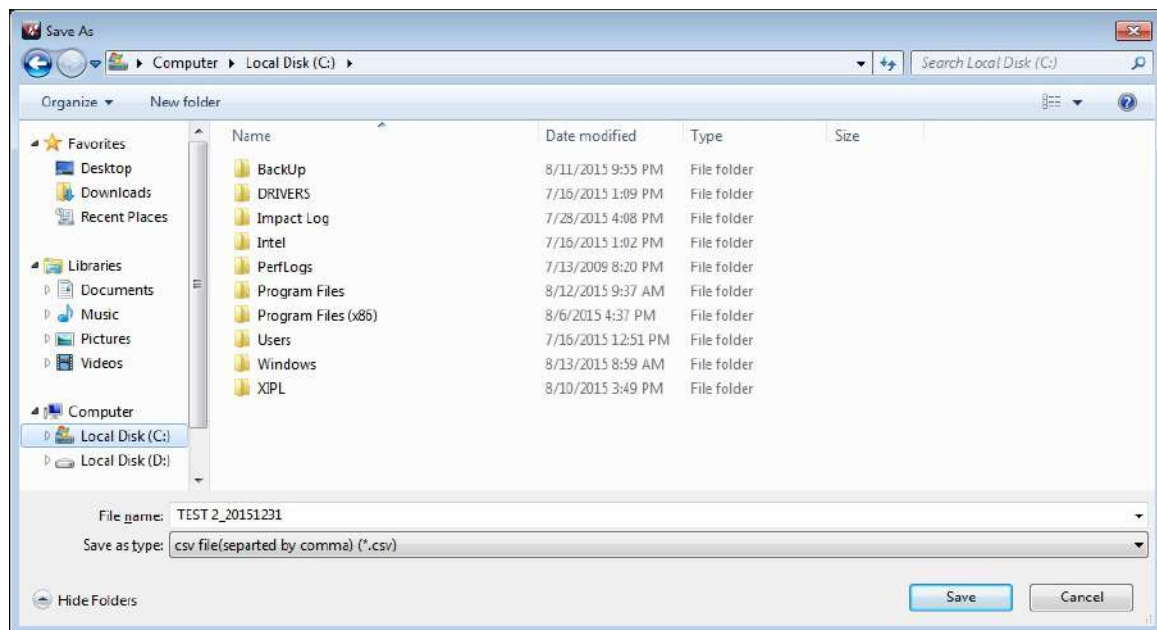
6 Go to the **Location** mode.

7 Click the location to export from the location list.

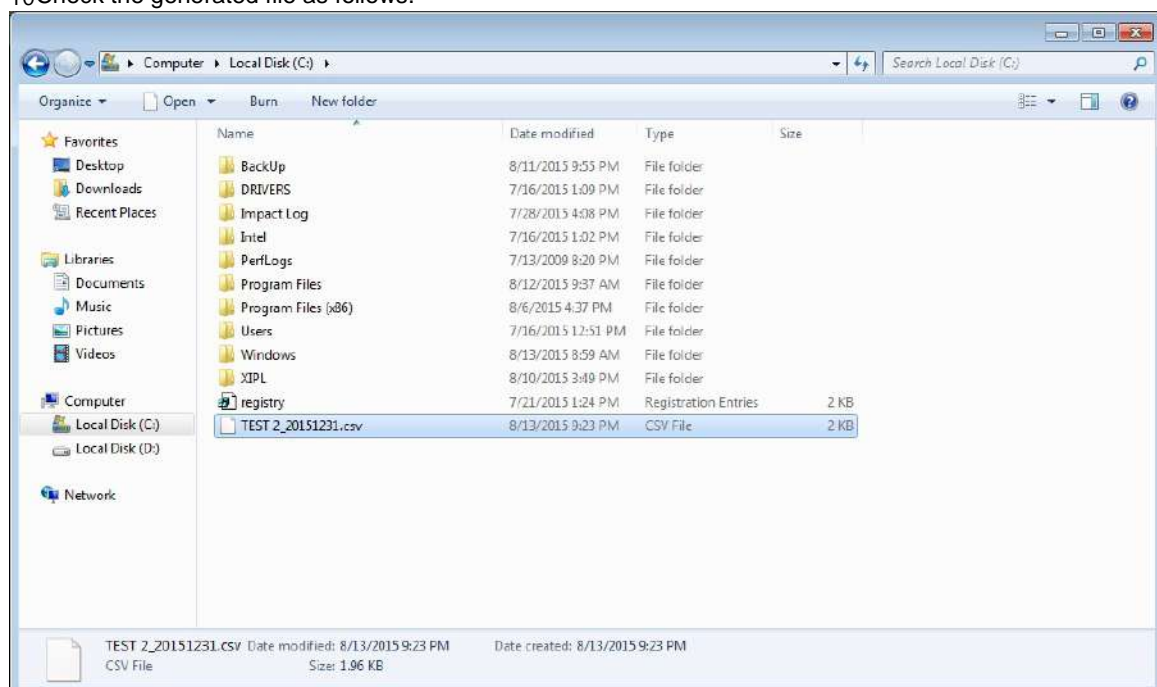


8 Click on  button at the top of the screen.

9 Choose a path to store the location and click on the **Save** button.



10 Check the generated file as follows.



11 Open the file and check the information of study list.

1	Location Name,Scheduled Date>Total study count,Exposed study count
2	TEST 2,12/31/2015,20,3
3	
4	Study Date/Time,Image Count,Acc. No.,Patient ID,Patient Name,Sex,Age,Birth Date,Modality,Patient Comment,Study Description,External Save,External Save Count
5	8/13/2015 13:44:42,0,105807,08105807,axdo~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
6	8/13/2015 13:44:42,0,105806,08105806,djkl~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
7	8/13/2015 13:44:42,0,105805,08105805,ddxp~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
8	8/13/2015 13:44:42,0,105804,08105804,hqohs~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
9	8/13/2015 13:44:42,0,105803,08105803,vlqrf~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
10	8/13/2015 13:44:42,0,105802,08105802,llytt~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
11	8/13/2015 13:44:42,0,105801,08105801,ndlr~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
12	8/13/2015 13:44:42,0,105710,08105710,qscju~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
13	8/13/2015 13:44:42,0,105709,08105709,lghrw~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
14	8/13/2015 13:44:42,0,105708,08105708,lxhux~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
15	8/13/2015 13:44:42,0,105707,08105707,tkrml~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
16	8/13/2015 13:44:42,0,105706,08105706,cwwdg~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
17	8/13/2015 13:44:42,0,105705,08105705,atjww~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
18	8/13/2015 13:44:42,0,105704,08105704,bqytw~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
19	8/13/2015 13:44:42,0,105703,08105703,apref~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
20	8/13/2015 13:44:42,0,105702,08105702,yhgrr~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
21	8/13/2015 13:44:42,0,105701,08105701,kxwvx~M,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
22	8/13/2015 14:05:58,1,105810,08105810,idwys~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
23	8/13/2015 14:06:03,1,105809,08105809,kiahf~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0
24	8/13/2015 14:06:08,1,105808,08105808,lclsc~F,004D,8/10/2015,TG,,CHEST LAT (LT),X,0

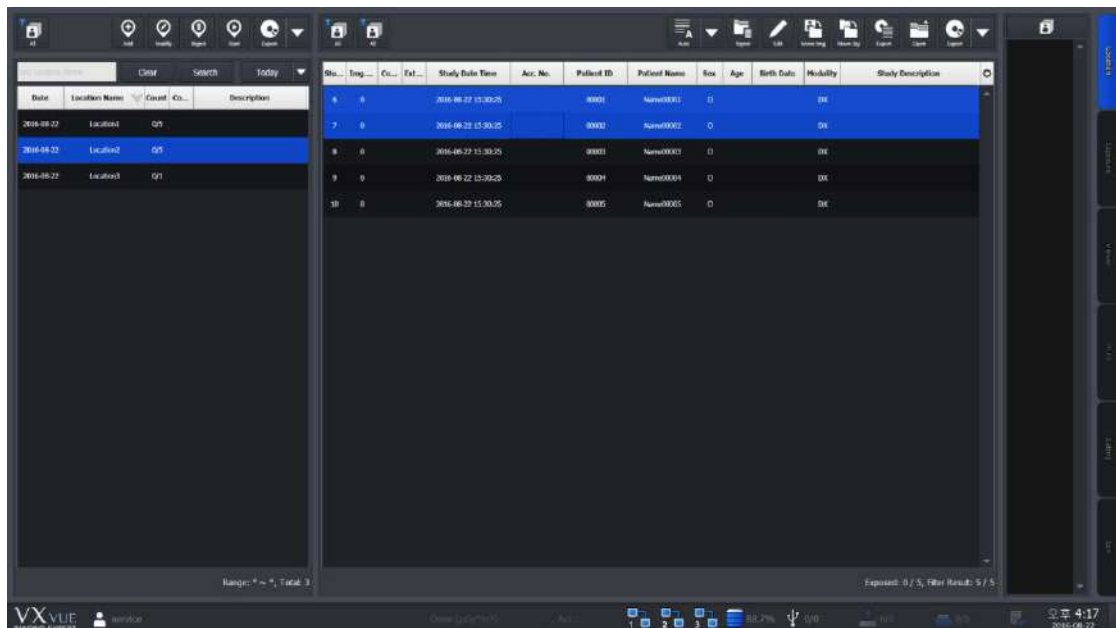



- The file is in csv format, and its name is formed as "Location_LocationDate".
- The encoding version of Unicode is UTF-8.
- Only the filtered study list can be exported.
- The column information of exported studies is as follows.
 - Study Date/Time
 - Image Count
 - Acc.No.
 - Patient ID
 - Patient Name
 - Sex
 - Age
 - Birth Date
 - Modality
 - Patient Comment
 - Study Description
 - External Save Status
 - External Save Study Count
- The column information of exported location is as follows.
 - Location Name
 - Scheduled Date
 - Total Study Count
 - Exposed Study Count

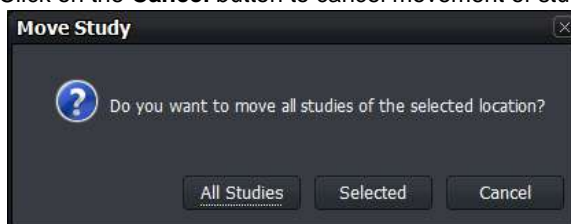
How to Move Studies

You can move the study from a specific location to the other location.

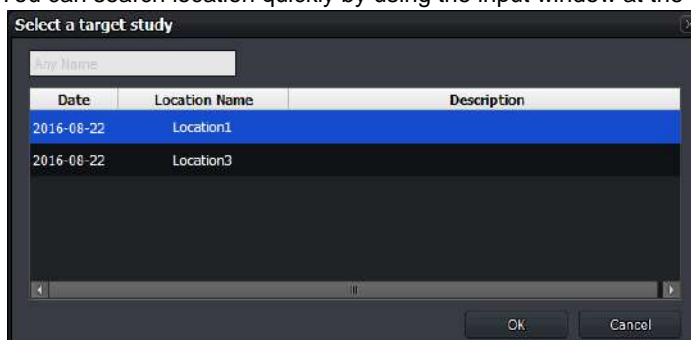
- 1 Enter the **Location** mode.
- 2 Click a location that you want to export from the Location list.



- 3 Click  button in the Study management area.
- 4 Select **All Studies** or **Selected** button from the window for study movement.
 - Click on the **Cancel** button to cancel movement of studies.



- 5 Choose a location you want to move the studies and click the OK button.
 - You can search location quickly by using the input window at the top of the screen.



- 6 From the Location list or Study list, check if the studies are moved correctly.

9.5 Exposure Index

- **Ecoview** can measure the intensity of x-ray dose reaching a detector through the subject and indicate it as the exposure index by making a correlation calculation with gray level.
- **Ecoview** can measure the exposure index automatically through specific algorithm (extracted effective value of the subject area from the image) and indicate it on the **Overlay** area of the image view.
 - **E.I.** (Exposure Index)
 - **Target E.I** (Target Exposure Index)
 - **D.I.** (Deviation Index)
- If you try to calculate exposure index without a subject, take images by selecting a specific step (EI – Pattern 25). This step calculates E.I of 25% area of the image from its center.

9.5.1 Exposure Index (E.I.)

- E.I is the correlation exponent between x-ray dose and gray level displayed on the image.
- The E.I range of ECORAY' detector is between **0 ~ 10000**.
 - The range can be different depending on each detector model.
 - We use E.I defined from IEC62494-1.

$$EI = c_0 \cdot g(V) \quad , \quad c_0 = 100 \mu\text{Gy}^{-1}$$

$$EI = 100 \mu\text{Gy}^{-1} \cdot g(V)$$

9.5.2 Target Exposure Index (Target E.I.)

- Target exposure index (**Target E.I**) is the expected optimal exposure index.
- You can preset **Target E.I** for each step and find the difference with the actual E.I.
- **Target E.I** is set differently depending on the detector model, diagnostic purpose, and image processing parameter.

9.5.3 Deviation Index (D.I.)

- Deviation index indicates the difference between **Target E.I** and **E.I**. Therefore, set both **Target E.I** and **E.I** to measure deviation index.
- With **D.I**, you can judge the exposure to each body part against the target exposure index.

Formula

- You can measure the deviation index as follows.

$$DI = 10 * \log_{10} \frac{EI}{EI_T} \quad \text{Ex) D.I.} = 10 * \log (1361/1300) = 0.199$$

Range and background color of D.I

- Range of D.I : 9.9 ~ 9.9
- The background color is indicated differently depending on the D.I value.
 - If the E.I value is improper to measure D.I, set the value again.

Background	Range	Description
Red	-9.9 < D.I. < -4	Severely lack of exposure.
Orange	-4 ≤ D.I. < -2	Lack of exposure.
Green	-2 ≤ D.I. ≤ 2	Optimal exposure.
Orange	2 < D.I. ≤ 4	Exceed the optimal exposure.
Red	4 < D.I. ≤ 9.9	Severely exceed the optimal exposure.

9.5.4 Setting the Target Exposure Index

- You can set the **Target Exposure Index**
 - Setting** → **Procedure Manager** → **Step** tab.

Target EI	Target EI(Gadox)
1200	1560

- Move to **Exposure** or **Viewer** mode > Click on the **Target E.I** button.



- Refer to <7.23 Changing Target E.I.> for the detailed information about setting the target exposure index with **Target E.I** button.
- Refer to the guide '**Exposure Index Settings**' provided by ECORAY to check the recommended target E.I for each body part.

- The allowed input range is **100 ~ 5000** and the default value is **286 ~ 500** depending on each body part.



- The default value of target E.I for each body part in **Ecoview** is **500** if you create a new body part. As target E.I is largely affected by the actual exposure environment, you should set the target E.I accorded with the environment when it needs to be changed.

9.5.5 Checking the Exposure Index

You can check each index values from overlaid information on the image view.

- Move to **Setting** → **Display** → **Information Overlay** tab.
- Choose **Exposure Index**, **Deviation Index**, **Target Exposure Index** from the **Item** list and add them to **Top Right** or **Bottom Right** list.
- Click on the **Update** button to apply the following items.
 - Exposure Index (**E.I.**) = 537
 - Target Exposure Index (**Target E.I.**) = 800
 - Deviation Index (**D.I.**) = -1.7 (10 * log (537/800))



9.6 Using Statistics Function

- You can calculate the desired statistics result from the exposure, study, and patient information stored in **Ecoview**.

Execution file

The statistics program is the stand-alone type one called by **Ecoview**.

Execution file	Location	Description
[ECOVIEW ROOT]	C:\Program files\Ecoview	Ecoview root folder (Default)
VW.STATISTICS.exe	[ECOVIEW ROOT]\VW.STATISTICS.exe	Statistics program
DBUpgradeTool.exe	[ECOVIEW ROOT]\DBUpgradeTool.exe	DB upgrade tool



- The database update for extracting statistic data is needed for using the statistics program.
- If the first installation version of **Ecoview** is older than V1.0.0.82, the database will be updated automatically when you execute the statistics program for the first time.
- If the **Ecoview** version is above V1.0.0.82, the database update is not needed since this version supports the database structure for extracting statistics data.



- You should backup the database file in advance and store it safely before updating database.

9.6.1 Starting

Execute program



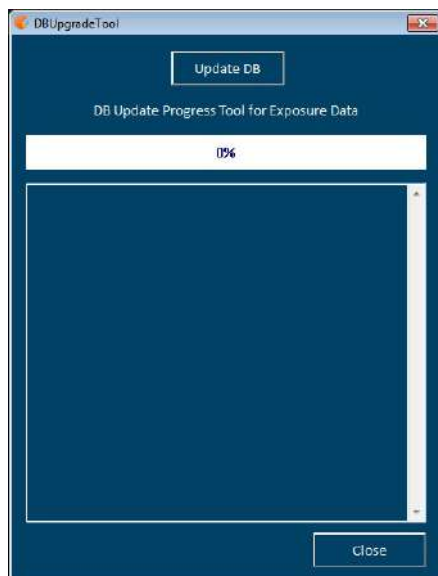
- Click on the **Statistics** button in the **Database** mode to execute the statistics program.

Login

Enter the login account.

- The user account information of statistics program complies with the user account registered in **Ecoview**.
- If you log on to **Ecoview** by the administrator account (Service, Admin), this login procedure is skipped.
- The specific patient information can be used with the performing physician ID only.

Database update

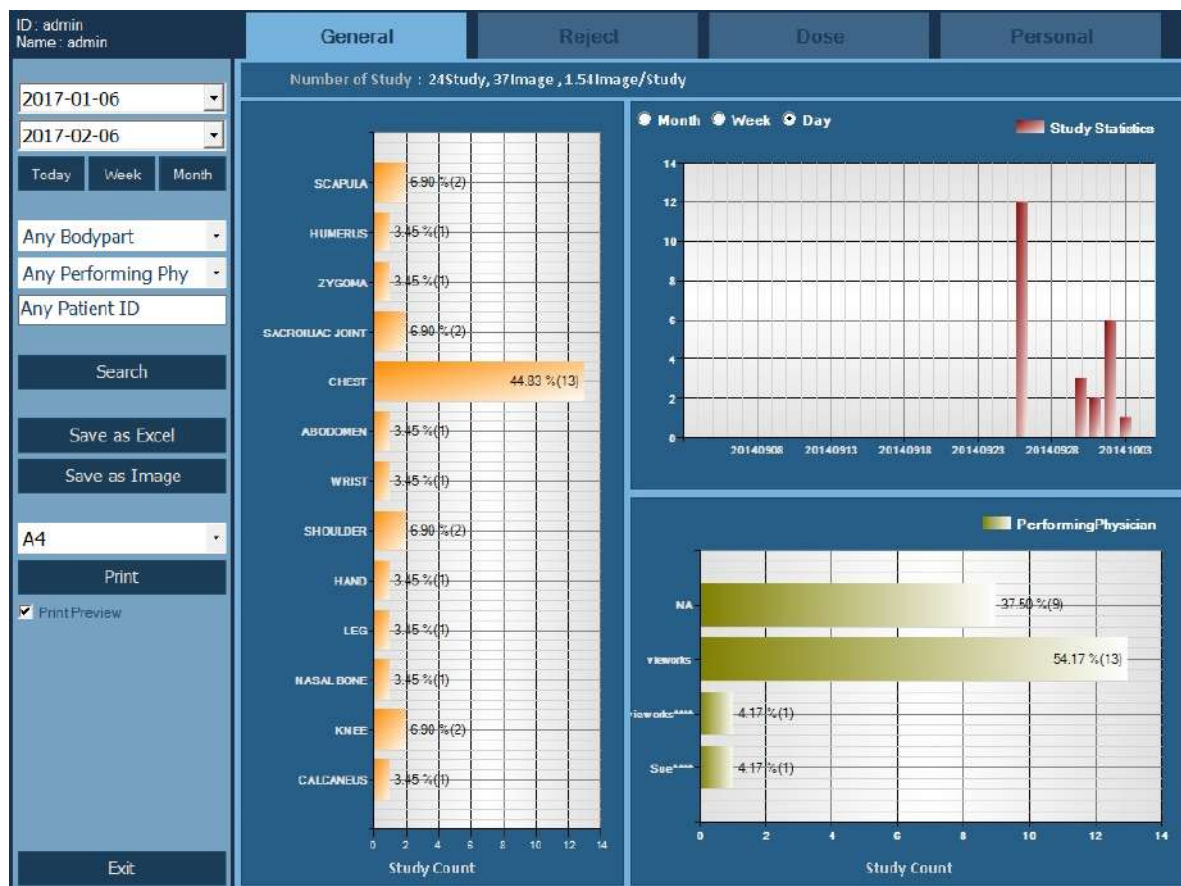


Click on the **Update DB** button to update database.

- This procedure is skipped if the database update is not needed.
- The update speed can be different depending on the PC specifications and the number of acquired images.

9.6.2 VW.STATISTICS

- Input search conditions to extract the desired statistics data.
- The statistics data can be exported to Microsoft Excel.
- The statistics data and graph can be stored or printed as an image.



Classification of statistics data

Item	Description
General	Statistics data of study, exposure and image

Reject	Statistics data of the deleted study and image
Dose	Statistics data of X-ray dose and the amount of radion.
Personal	Statistics data for each patient

9.6.3 Search

Input the search condition by period

Input the range of date to calculate the statistics data for each period.

- Click on the dropdown button or click on **Today**, **Week**, and **Month** buttons to appoint the start and the last date.

Input the patient and study search condition

Extract the statistics data by each Bodypart, Performing Physician, and patient ID.

- Choose the specific Bodypart or Performing Physician.
- Input the specific patient ID. You can check statistics result of the relevant patient only.

Search

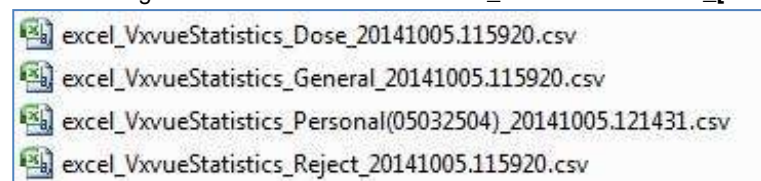
- Click on the **Search** button.
- Check statistics data of each tab matched with the search condition.

9.6.4 Exporting the Statistics Data

Export the Excel data

- Click on the **Save as Excel** button.
- Specify the storage path and save the statistics data as a CSV Excel file.

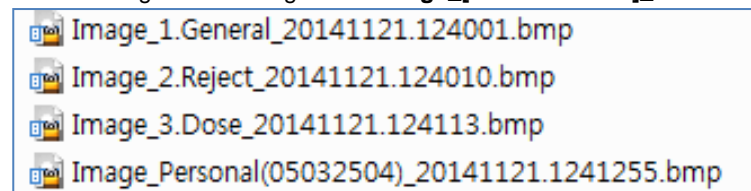
- The storage rule of Excel data file is **excel_EcoviewStatistics_[Statistics Item]_YYYYMMDD.hhmmss.csv**.



Export image

- Click on the **Save as Image** button.
- Specify the storage path and save the statistics data as a BMP image file.

- The storage rule of image file is **Image_[Statistics Item]_YYYYMMDD.hhmmss.bmp**.



Print the search result of statistics

A4

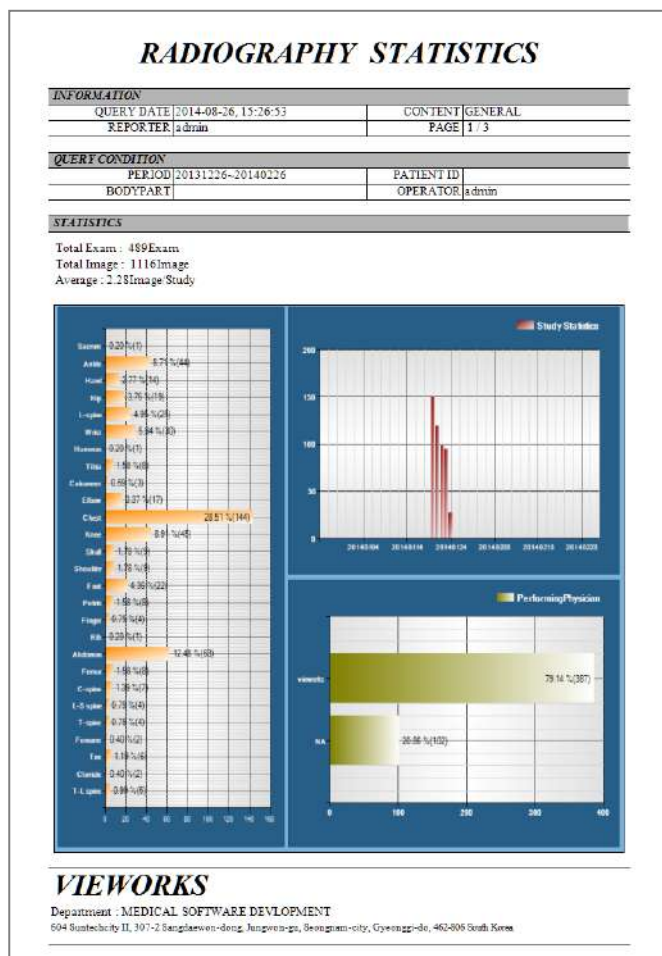
Print

☒ Print Preview

Click on the **Print** button and print the searched result of statistics to the selected paper size.

- Supports A4, A3, B4, Letter, Legal, and Tabloid sizes
- The same screen of exported image is printed.
- Check **Print Preview** to preview the printing result.

Printing result screen (example)



9.6.5 General Tab

- The study statistics data and graph are indicated according to the search conditions.



1 Summary

- Total number of studies / Total number of exposed images / Average number of images per study

2 Statistics of the exposure number per bodypart

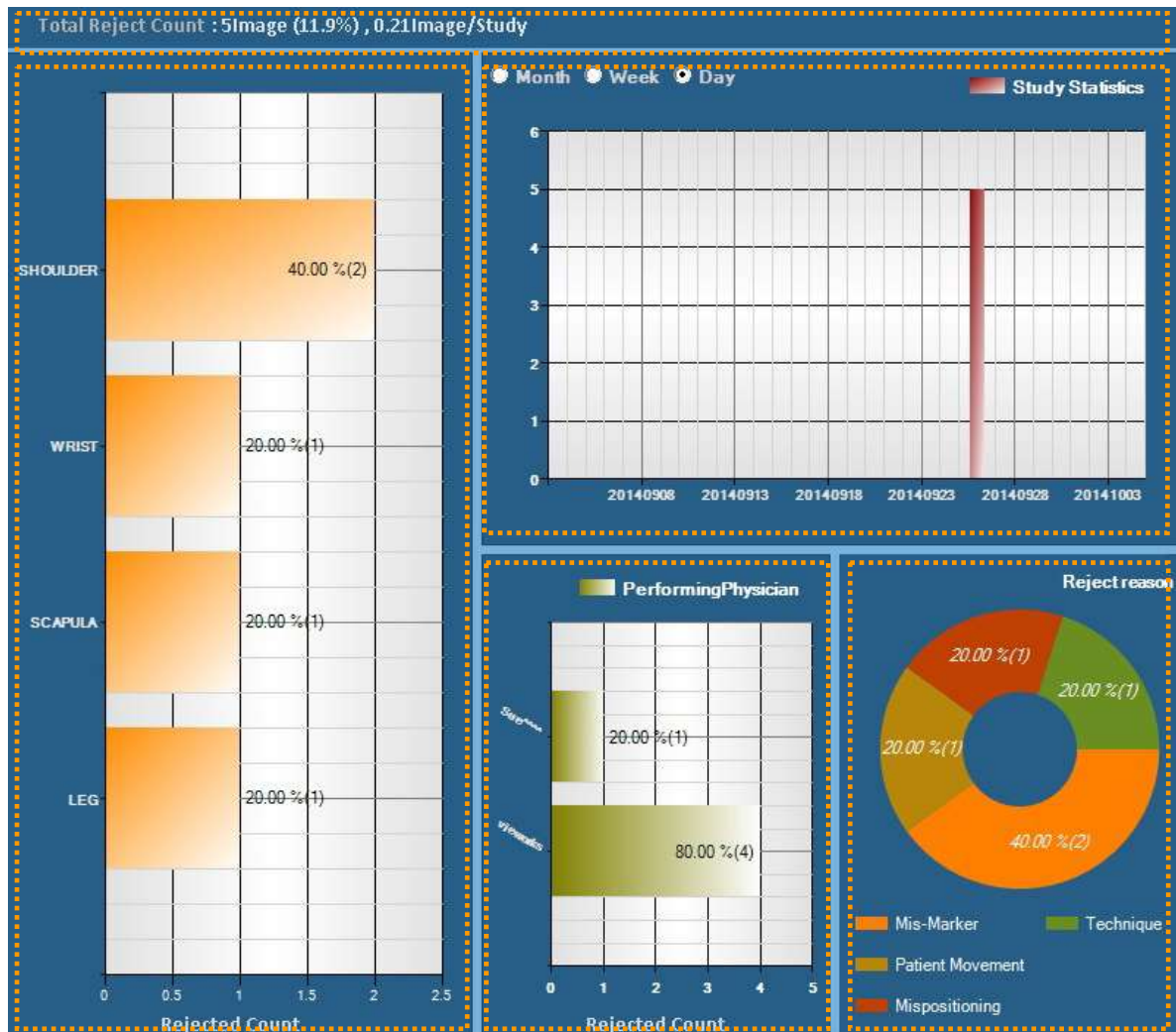
3 Statistics of the exposure number by period

- Month / Week / Day

4 Statistics of the exposure number by each performing physician

9.6.6 Reject Tab

- The rejected study statistics data and graph are indicated on according to the search conditions.



1 Summary

- The number of removed studies / The average number of removed studies per study

2 Statistics of the rejected study number per bodypart

3 Statistics of the rejected study number by period

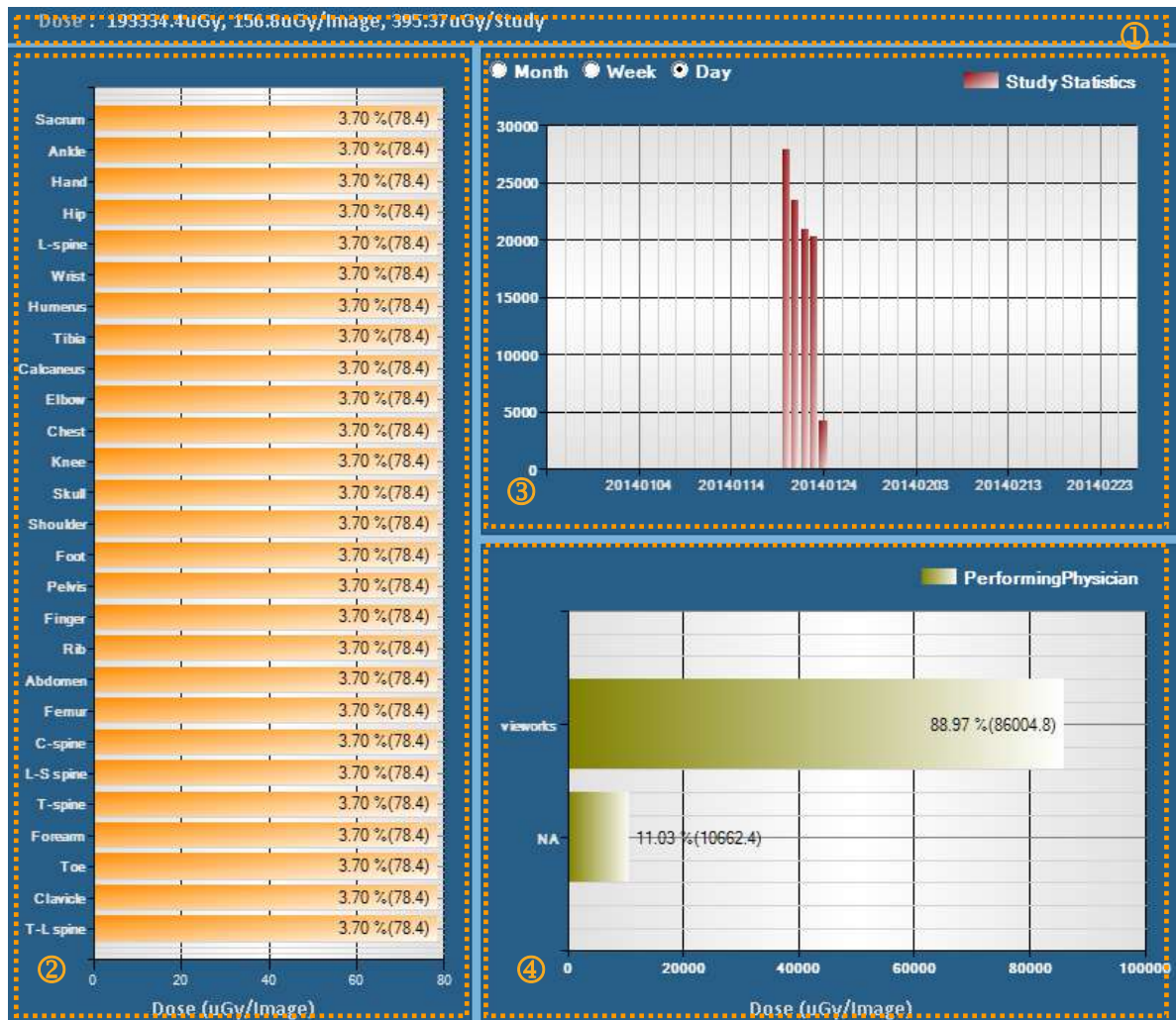
- Month / Week / Day

4 Statistics of the rejected study number by each performing physician

5 Statistics of the rejected study number by reason

9.6.7 Dose Tab

- The statistics data and graph about the amount of exposed x-ray dose are indicated according to the search conditions.



1 Summary

- Total amount of x-ray dose / Average dose per image / Average dose per study

2 The statistics of exposed dose per bodypart

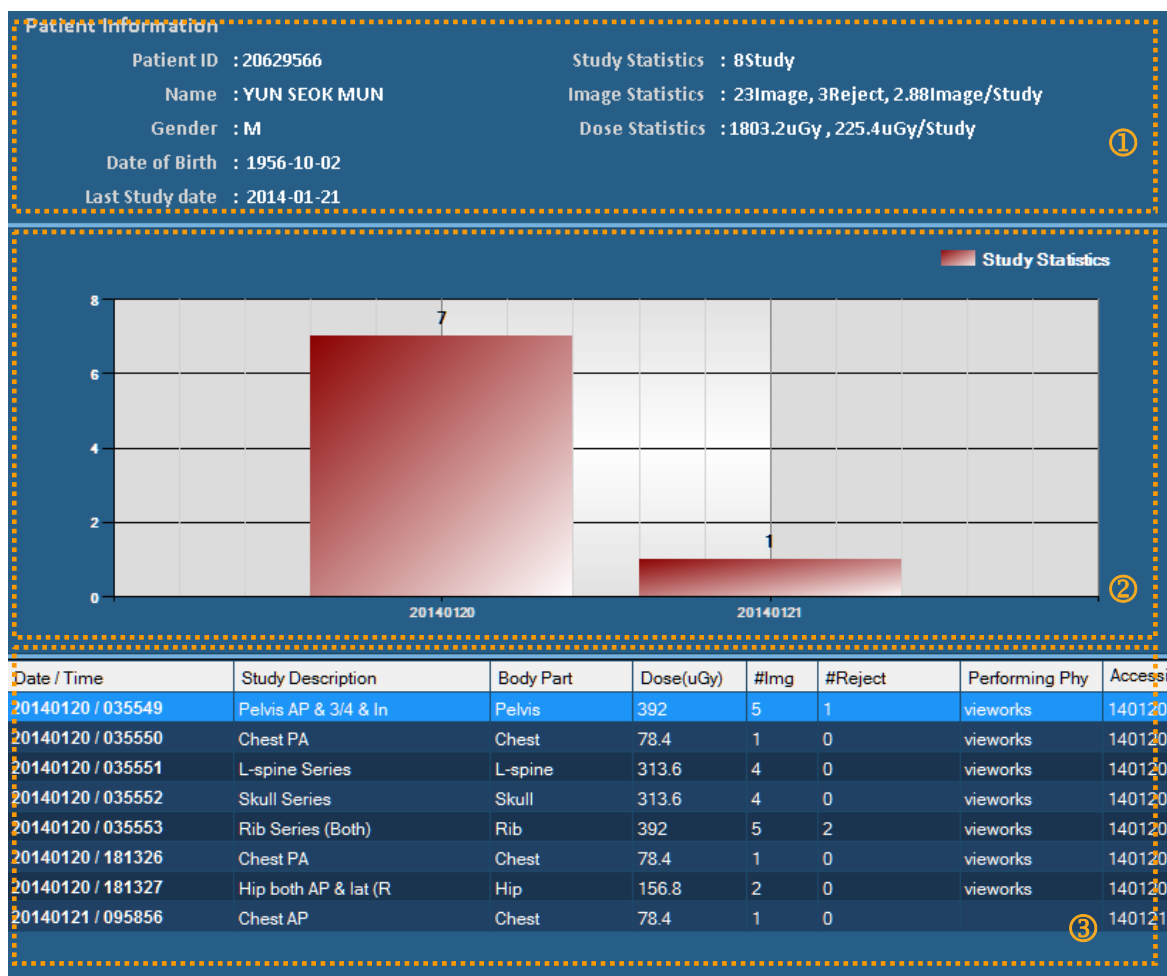
3 Dose statistics by period

- Month / Week / Day

4 Dose statistics by each performing physician

9.6.8 Personal Tab

- The statistics data and graph about the study, exposure, and exposed dose related to the searched patient are indicated.



1 Summary

- Basic patient information (ID / Name / Gender / Birth date / Last study date)
- Total number of exposed studies
- Total number of exposed images, number of rejected images, average number of exposed images per a study
- Total amount of exposed dose, average amount of exposed dose per a study

2 Total number of studies per each exposure date

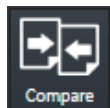
3 Details of examination list

- Exposure date and time / Study Description / Bodypart
- Exposed dose
- Number of images / Number of rejected images
- Performing physician / Accession number / Study UID

9.7 Comparing Studies

9.7.1 Getting Started

Selecting images to be compared



- Compared images by selecting more than two studies.
 - The contents changed while comparing studies are not stored.

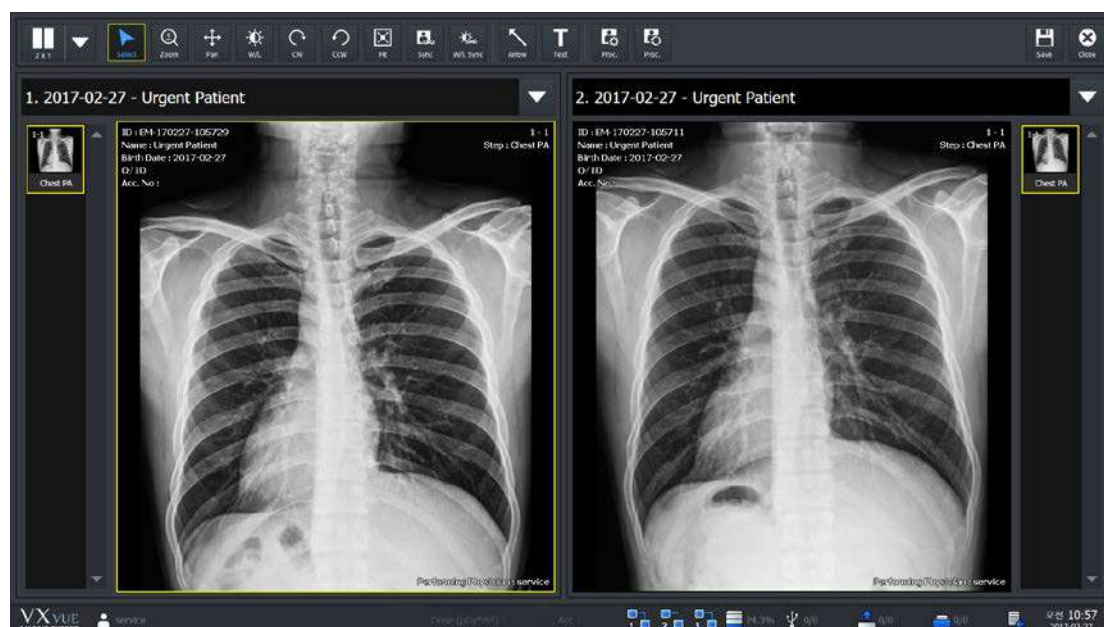
- How to compare studies which have the same patient ID

- 1 Select a study from **Database** and click on the **Compare** icon.
- 2 If a study with the same patient ID exists, it is compared with the selected study.











- How to compare studies which have the different patient IDs

- 1 Select more than two studies from **Database** and click on the **Compare** icon.

9.7.2 Tool Buttons

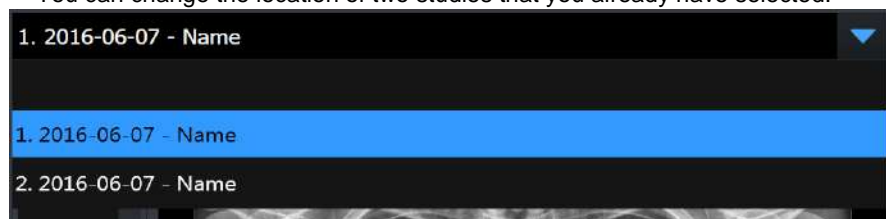


Icon	Name	Description
	Layout	Changes layout of studies to 2x1, 1x2, and 2x2.
	Select	Selects an image. Returns a mouse button to its default state.
	Zoom	Zooms in or out the image.
	Pan	Moves the image to the desired location.
	W/L (Window Level)	Adjusts the brightness and contrast of the image.
	CW (Clockwise)	Rotates an image by 90° clockwise.

	CCW (Counter Clockwise)	Rotates an image by 90° counterclockwise.
	Fit	Fits an image to the main image window size. If the image is cropped, the cropped area is fit to the window size.
	Sync	When you zoom, pan, rotate the selected image after activation, you can it automatically applies to all remaining images displayed on the screen simultaneously.
	W/L Sync	If you adjust the W/L of the selected image after activation, it automatically applies to all remaining images displayed on the screen simultaneously.
	Arrow	Draws an arrow to indicate the specific region of the image.
	Text	Adds text to the image to indicate the information.
	Image Process	Processes the image with various tools from XIPL , the image processing program connected with Ecoview .
	Process Control	Processes the image conveniently.
	Save	Saves the processed image.
	Close	Finishes comparing studies.

9.7.3 Selecting Studies

- Select the combo box to select studies you want to view.
 - A study without images can be selected.
- You can change the location of two studies that you already have selected.



9.7.4 Selecting Images

- Click the thumbnail to select images.
- You can compare the selected images with those of another study.

10. Additional Functions

This chapter provides information about the additional functions of Ecoview.

Status Bar
Emergency
Switching the User Account
Managing the List Header and Field
Mouse and Shortcuts
Icon
Cursors

10.1 Status Bar

You can check the status of **Ecoview** from the status bar.



- **Ecoview** logo
- Current login account
- Signal strength of the wireless detector
- Battery remains of the wireless detector
- Free space of hard disk
- Storage status of the External Save
- Transmission status of DICOM image
- Print status of DICOM image
- Current date and time



- Refer to Status Bar menu in Ecoview Service Manual for editing status bar display information.

10.1.1 Checking the Status Information



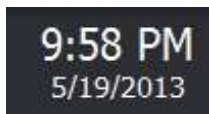
- 1 Indicates the wireless signal strength of the wireless detector.
- 2 Indicates the connection status of a detector.
- 3 Indicates battery remains of a wireless detector.
- 4 Indicates free space of the hard drive.
 - The status icon is blinking if the free capacity is insufficient.
- 5 Indicates the status of External Save. (Success / All)
 - Click on the icon to convert the screen as **Setting** mode → **System** panel → **External Save** tab.
- 6 Indicates the storage server status of DICOM images.
 - The icon shows connecting status of the storage server of DICOM images. (No server list / Normal / Disconnected / Unknown in connecting status)
 - If the connecting status is 'Echo' or 'Not transmitting images', it renews its status in every 5 minutes.
 - The transmission status to the DICOM storage server is indicated as a number beside of the icon. (Success / All / Fail)
 - When you click on this icon, the tab is converted to **Setting** mode → **DICOM** panel → **Queue** tab.
 - You can check the transmission status of prints from the **Queue** tab in detail.
- 7 Indicates the transmission status of image to DICOM storage server after logging to **Ecoview**.
 - The icon shows connecting status of the DICOM print server. (No server list / Normal / Disconnected / Unknown in connecting status)
 - If the connecting status is 'Echo' or 'Not transmitting images', it renews its status in every 5 minutes.
 - The transmission status to the DICOM print server is indicated as a number beside of the icon. (Success / All / Fail)
 - When you click on this icon, the tab is converted to **Setting** mode → **DICOM** panel → **Queue** tab.
 - You can check the transmission status of print from the **Queue** tab in detail.
- 8 Indicates the transmission status to DICOM MWL server after logging to **Ecoview**.
 - The icon shows connecting status of the DICOM MWL server. (No server list / Normal / Disconnected / Unknown in connecting status)
 - If the connecting status is 'Echo' or 'Not transmitting images', it renews its status in every 5 minutes.



- Refer to <10.6.1 Status Bar Icon> about the icon status information.

10.1.2 Setting Date and Time

Check the present date and time



- The displayed date and time are complied with the Windows operating system.
- Set the date and time in the control panel of the Windows operating system.

10.2 Emergency

You can use the following functions of **Ecoview** in a medical emergency situation.

- Make an emergency exposure without a login account.
- You can take images first without entering the information of an emergency patient if there is no time to figure it out.

10.2.1 Emergency Mode

The user can make an emergency exposure without a login account.



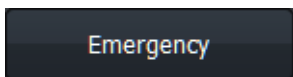
- Click on the **ER** button on the login window.
- You can log in without entering ID and password.
- Use this function in case of medical emergency.



- In the **ER** mode, you can only enter into the **Registration** mode and the **Exposure** mode.
- The following functions are unable to use from the **Registration** mode and the **Exposure** mode.
 - DICOM sending or DICOM printing from the **Exposure** mode.
 - Process or delete the image from the **Exposure** mode.

10.2.2 Emergency Exposure

- You can make an emergency exposure without registering patient information.
- This exposure can be started from the **Registration** mode.



- Click on the **Emergency** button and make an emergency exposure.
- The screen is converted to the **Exposure** mode automatically.
- The ID and name of the emergency patient are entered automatically based on the present date and time.
- The patient ID is entered as **EM-YYMMDD-HHMMSS** form.
- The patient name is entered as **Urgent Patient**.



- You can update the patient information after completing the exposure.

10.3 Changing the User Account

If the radiologist in charge of taking images is changed, use the Log Off function to change the user account without closing **Ecoview**.



- The statistics results of **Quick Access Tool**, and **Button Setting** are different depending on the settings by each user account.

10.3.1 Log In/ Off

- 1 Select the **Exit** mode and click on the **Logoff** button to close the account being accessed currently.






- 2 Enter the ID and password of the radiologist in charge and click on **Login** when a login window displays.



10.3.2 Auto Offset Refresh

The Offset Refresh for each detector is performed from the login window automatically if the following two conditions are satisfied at the time of rebooting **Ecoview** or switching its user account.

- Over 30 minutes has passed from the last Offset Refresh.
- The temperature difference of detector is over 3°C from the last Offset Refresh.

	<ul style="list-style-type: none">• The Offset Refresh is not performed in case the user logs in ER mode.• The Offset Refresh is not performed from the demo version, though the related message is displayed.
	<ul style="list-style-type: none">• You cannot cancel the Offset Refresh while it is being performed.• The Offset Refresh is cancelled when it is started right after the x-ray is exposed or the x-ray is exposed while the Offset Refresh is performed.
	<ul style="list-style-type: none">• The Offset calibration data has a direct effect on image quality.<ul style="list-style-type: none">▪ Keep the detector free from shock or vibration while the Offset Refresh is performed.▪ Carry out the Offset calibration again from VXSetup if an error is detected in the image quality.

10.4 Managing the List Header and Field

- **Ecoview** has three lists as follows.
 - Searched result list of Worklist (**Registration** mode → **Scheduled** panel)
 - Stored list of searched result (**Registration** mode → **Reserved** panel)
 - Searched result list of a study and image (**Database** mode)
- Each list has a list header, and each header has dozens of data fields.
- You can range or edit the order of each field as necessary.

10.4.1 Field Information

No.	Item	Scheduled	Reserved	Database
1	Key	X	O	X
2	Study Key	X	X	O
3	Send Status	X	X	O
4	Print Status	X	X	O
5	Backup Status	X	X	O
6	Img. Count	X	X	O
7	Study Date Time	X	X	O
8	Acc. No.	O	O	O
9	Patient ID	O	O	O
10	Patient Name	O	O	O
11	Sex	O	O	O
12	Age	O	O	O
13	Birth Date	O	O	O
14	Modality	O	O	O
15	Bodypart	O	O	O
16	Scheduled Performing Physician's Name	O	O	O
17	Referring Physician	O	O	O
18	Patient Comments	O	O	O
19	Study Description	O	O	O
20	Study ID	X	X	O
21	Study Instance UID	O	O	O
22	Scheduled Date Time	O	O	O
23	Scheduled Procedure Step Description	O	O	O
24	Requested Procedure ID	O	O	O
25	Scheduled Station AE Title	O	O	O
26	Requested Contrast Agent	O	O	O
27	Scheduled Station Name	O	O	O
28	Scheduled Procedure Step ID	O	O	O
29	Requested Procedure Description	O	O	O
30	Requested Procedure Code Sequence	O	O	O
31	Requested Procedure Priority	O	O	O
32	Patient Transport Arrangement	O	O	O
33	Requested Procedure Location	O	O	O
34	Requesting Service	O	O	O
35	Visit Status ID	O	O	O
36	Patient Institution Residence	O	O	O
37	Current Patient Location	O	O	O
38	Admitting Diagnosis Description	O	O	O
39	Other Patient IDs	O	O	O
40	Other Patient Names	O	O	O
41	Patient Birth Time	O	O	O
42	Patient Height	O	O	O
43	Patient Weight	O	O	O
44	Ethnic Group	O	O	O
45	Occupation	O	O	O
46	Patient Address	O	O	O

47	Patient Telephone Numbers	O	O	O
48	Confidentiality constraint on Patient Data	O	O	O
49	Additional Patient History	O	O	O
50	Patient State	O	O	O
51	Pregnancy Status	O	O	O
52	Medical Alerts	O	O	O
53	Allergies	O	O	O
54	Special Needs	O	O	O
55	External Save Status	X	X	O
56	Reading Physician	O	O	O
57	Institution Name	O	O	O
58	Performing Physician	O	O	O
59	Suspend	X	X	O
60	User-Defined Field1	O	O	O
61	User-Defined Field2	O	O	O
62	User-Defined Field3	O	O	O
63	User-Defined Field4	O	O	O
64	User-Defined Field5	O	O	O
65	User-Defined Field6	O	O	O
66	User-Defined Field7	O	O	O
67	User-Defined Field8	O	O	O
68	User-Defined Field9	O	O	O
69	User-Defined Field10	O	O	O
70	Scheduled Protocol Code Sequence	O	X	X
71	Registered	O	O	X
Total		61	62	68

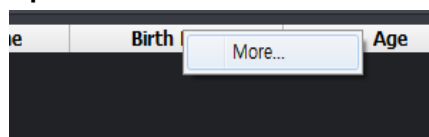
10.4.2 Aligning List Based on the Specific Field



- Click the left mouse button on the desired field to align it on the header of study list.
- You can align the list as an ascending or descending order based on the selected field.

10.4.3 Editing Fields

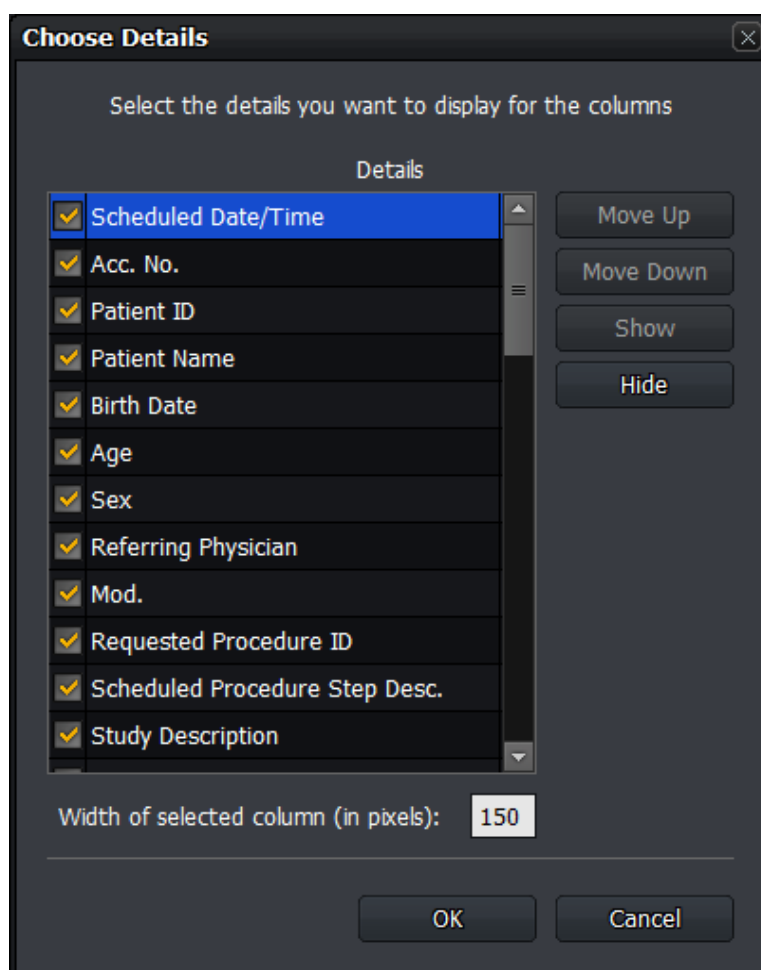
Open the field edit window



- 1 Click the right mouse button on the list header.
- 2 Click on the **More...** menu to open the field edit window.

Use the field edit window

- You can add a new field to the header of study list.



- 1 Check a checkbox or select a desired item, and click on the **Show** button. You can add a field from the header of a study list.
- 2 Uncheck a checkbox or select a desired item, and click on the **Hide** button. You can hide a field from the header of a study list
- 3 Select a desired item and click on the **Move Up** or **Move Down** button. You can adjust the field order from the header of a study list.
- 4 Select a desired item and input the width of a field directly from **Width of selected column (in pixels)**. You can set the width of each field in a pixel unit.
- 5 Click on the **OK** button and check if the field is changed.



- If you remove a field, it becomes invisible from the header, but the data is not removed actually.

10.5 Mouse and Shortcuts

- **Ecoview** provides various functions to users by using a mouse and shortcuts.
- It is necessary to use a mouse for image processing.

10.5.1 Mouse

Movement	Description
Click left button	Activates a specific function by selecting image, menu, or a button.
Click right button	Indicates options of the selected menu. This action is same as a long touch.
Ctrl + Click left button	Selects multiple items.
Shift + Click left button	Clicks on the first and the last items to select all items between them.
Double click the left button	Conducts a special function defined to each menu.
Scroll	Changes to select an image by using the mouse wheel.
Press and hold the left button+ Drag	Adjusts the parameter or move the object / change the object size.
Press and hold the right button+ Drag	Controls W/L (Window level). This function can be used while another function is in use.

10.5.2 Shortcuts

Shortcut	Description
F2	Makes a virtual exposure from Ecoview Demo .
F5	Changes the direction of Projection to the left or right in the Exposure mode.
F6	Adjusts the width of Bodypart and Projection area narrowly or widely in the Exposure mode.
F7	Changes the Quick Access tools in clockwise direction in the Exposure mode.
F8	Converts UI type of the step selection area in the Exposure mode. • Image Type ↔ Button Type
ESC	The annotation mode is canceled if the annotation of figure or measurement is being made.

10.6 Icon

10.6.1 Status Bar Icon

Wireless signal status

Icon	Description
	Very good
	Good
	Normal
	Bad
	Very bad, Disconnected

Detector connection status

Icon	Description
	Connected
	Not initialized
	Disconnected

Battery remaining status

Icon	Description
	Not initialized
	75~100%
	50~75%
	25~50%
	25% and less
	Very low





Hard disk and transmission status icon

Icon	Description
	Errors in the local HDD
	The remaining capacity of local HDD is 25% or less.
	The remaining capacity is 50% or less compared to the total capacity of local HDD.
	The remaining capacity is 75% or less compared to the total capacity of local HDD.
	The remaining capacity is 100% or less compared to the total capacity of local HDD.
	Status of DICOM image storage server
	Status of DICOM print server





DICOM image storage server status icon

Icon	Description
	No DICOM image storage server list
	All selected DICOM image storage servers are connected normally.
	One or more of the selected DICOM image storage servers are disconnected.
	The connecting status of one or more of the selected DICOM image storage servers is unknown



DICOM print server status icon

Icon	Description
	No list of DICOM and paper printer servers.
	Selected DICOM print server is connected normally.
	The selected DICOM print server is disconnected.
	The connection status of the selected DICOM print server is unknown.

DICOM MWL server status icon





Icon	Description
	No list of DICOM MWL servers.
	Selected DICOM MWL server is connected normally.
	The selected DICOM MWL server is disconnected.
	The connection status of the selected DICOM MWL server is unknown.

External Save status icon

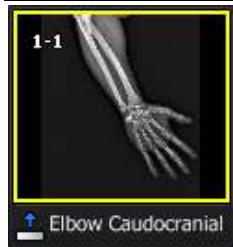
Icon	Description
	External Save can be performed because the path specified by External Save normally exists.
	External Save is stopped because the path specified by External Save does not exist normally.





10.6.2 Study Item Status Icon

- The icons indicate status of the study items which are displayed on the database search list.

Icon	Description
	Backed up
	The backed up images are removed from system.
	Transmitted to the DICOM print storage server.
	Printed to the DICOM print server.



10.6.3 Thumbnail Image Status Icon

Icon	Description
	Transmitted to the DICOM image storage server.

 <p>1-1</p> <p>Elbow Caudocranial</p>	Printed from the DICOM print server.
 <p>1-1</p> <p>Elbow Caudocranial</p>	Rejected
 <p>1-1</p> <p>Elbow Caudocranial</p>	The step is registered and ready to be exposed.
 <p>1-4</p> <p>Chest PA</p>	The image is rejected and available to be restored.












10.6.4 Detector Information Display Icon

Icon	Description
	Battery is full.
	Battery remains three quarters.
	Battery remains a half.
	Battery remains a quarter.
	Battery remains low.
	Connecting error occurs in the DICOM image storage server.
	The DICOM image storage server is connected.
	The DICOM image storage server is disconnected.
	Temperature error
	Normal temperature
	High temperature
	Wifi condition - full
	Wifi condition - three quarters
	Wifi condition - half

	Wifi condition - quarter
	Wifi error

10.6.5 Detector Connection Status Icon









Basic Theme (Onyx Classic) Icons

Icon	Description
	The detector is disconnected.
	Some images are not sent to the viewer but remained in the internal memory of a detector.
	It is needed to check the operating environment of the detector.
	The detector is in sleep mode.
	FXRD-1717SA/SB detector is connected.
	FXRD-1417SA/SB detector is connected.
	The wireless detector model (FXRD-W, FXRD-N) is connected with Wi-Fi.
	The wireless detector model (FXRD-W, FXRD-N) is connected with a tether interface cable.
	The detector is installed on the x-ray bucky stand.
	The detector is installed on the x-ray bucky table.
	The detector is being used as a CR mode.








10.7 Cursors

- When you select image processing or annotation tools, the mouse cursor is changed to the corresponding shape.

10.7.1 Cursor for Image Processing Tools

Cursor	Description
	Crop
	Zoom
	Magic Glass
	Window Level
	Pan
	Move
	Free Rotation by Line)
	Free Rotation by Drag

10.7.2 Cursor for Annotation Tools

Cursor	Description
	Angle
	Arrow
	Distance, Vertical Discrepancy, Image Pixel Spacing
	Window Level
	Ellipse
	Rectangle
	Text

VIVIX-S 1717V Operation Manual



CE 2460

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The specifications and related information in this manual may be changed without notice. Refer to Vieworks Download System (VDS) for the latest version of our manuals.

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1. Instruction

This section gives basic information about this manual and safe product use.

Document Guide
Indicatoins for Use
Product Use
Safety Instruction
Product Usage Guide

1.1 Document Guide

This operation manual explains how to use the **VIVIX-S 1717V** detector made by Vieworks, X-ray interface unit, and other peripheral equipment. Use this manual to install, set up and manage the **VIVIX-S 1717V** detector as well as understand its various functions.

1.1.1 Caution

If the user is not fully acquainted with this manual, the product can be malfunctioned or unsuspected problem can be happened due to carelessness. To prevent any medical accidents, the user should fully understand the instructions of this manual before operating this product.

1.1.2 Target

This document is intended for general users who use and set up the **VIVIX-S 1717V** detector.

1.1.3 Symbols

This product should be operated under the safety instructions with the warning or caution symbol in this manual. It is important for you to read and understand the contents to operate the products safely.

Caution and Warning



- This symbol is used to indicate a potentially hazardous situation that may cause death, personal injury or substantial property damage if the instructions are ignored. Users should be well acquainted with this symbol and the related contents.

Information



- This symbol is used for indicating product related references and supplementary information. Users are recommended to read the sentences with this notice carefully.

1.1.4 Notations

Bold Types

Words in bold indicate products terms, or the sentences which are needed to transmit clear meaning to the customers.

1.1.5 Contact Us

For comments or inquiries regarding this document and relevant products, contact via email below.

Item	Contents
Department	Customer Support Team at Vieworks
E-mail	CustomerSupport@vieworks.com

1.2 Indications for Use

VIVIX-S 1717V series is used for the general-purpose diagnostic procedures, and as well as intended to replace radiographic film/ screen systems. The VIVIX-S 1717V series is not intended for mammography applications.



- Federal law restricts this device to sale by or on the order of a physician.

1.2.1 Intended Use

The **VIVIX-S 1717V** detector is a digital X-ray imaging solution that captures X-rays transmitted through the human body and acquires images by wired connection. When X-ray photons pass through the scintillator in the detector, the photons convert to visible ray, and the visible ray is converted to electronic signals through TFTs – thin film transistors (a-Si). Then the detector digitalizes X-ray images and transfers them to the PC (workstation) for diagnostic review using an image display monitor. Advanced digital image processing also allows efficient diagnosis, information management, and sharing of image information over the network.

1.2.2 Features

- Compatible with film cassettes (ISO4090 compliant), it can replace the conventional analog radiology diagnostics.
- The new sensor with 140µm of pixel pitch produces high spatial resolution (approximately 9.4 Mega pixels) digital images.
- You can choose between two scintillator types (CsI and Gadox) of a detector provided by Vieworks.
 - **FXRD-1717VA** – CsI (Cesium Iodide, 428.4 x 428.4mm)
 - **FXRD-1717VB** – Gadox (Gadolinium Oxysulfide, Min. 428.4 x 428.4mm)
- This model does not provide wireless function.

1.3 Product Use

This chapter provides instructions about the use of the product, disposal and the liability limit of Vieworks.

1.3.1 Product Usage

- 1 Only a physician or a legally certified operator should use this product.
- 2 The equipment should be kept in a safe and operable condition by maintenance personnel.
- 3 Follow the guidelines in this manual when installing and using this product.
- 4 Use only computers and image display monitors recommended in this manual.
- 5 Use only the dedicated cables provided with this product.
- 6 For details about installation and use of the product, consult your sales representative or a distributor.

1.3.2 Disclaimer

- 1 In no event shall Vieworks be liable for damage or loss arising from a fire, earthquake, any action or accident by a third party, any intentional or negligent action by users.
- 2 In no event shall Vieworks be liable for damage or loss arising from any trial usage, or other usage under abnormal conditions.
- 3 In no event shall Vieworks be liable for personal physical harm or property damage that is sustained when the instructions of this manual are not followed.
- 4 In no event shall Vieworks be liable for any damage arising from moving, alteration, inspection or repair the product by a person other than an authorized service engineers by Vieworks.
- 5 In no event shall Vieworks be liable for loss of image data for any reason while using this product.
- 6 Roentgenography, image processing, image reading, and image data storage must be performed in accordance with the laws of the country or region in which the product is being used.
- 7 The user is responsible for maintaining the privacy of image data acquired from this product.
- 8 It is the responsibility of the attending physicians to provide medical care services. Vieworks will not be liable for faulty diagnoses.
- 9 Specifications, composition, and appearance of this product may change without prior notice.

1.3.3 Product Disposal

Disposal of this product in an unlawful manner may have a negative impact on health and on the environment. When disposing of this product, therefore, be absolutely sure to follow the procedure that conforms to the laws and regulations applicable in your area.

1.3.4 Trademarks

The name "Vieworks" and the Vieworks logo are registered trademarks of Vieworks.

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1.4 Safety Instruction

This product is designed and manufactured to ensure maximum safety of operation and to meet all the safety requirements applicable to electronic medical equipment. Follow these safeguards while using the products to prevent severe personal injury or substantial property damage. It is important to read and understand the contents of this manual before using the product.

1.4.1 Management and Authority



- The product should be installed, operated, and serviced according to Vieworks maintenance procedures and by a Vieworks service representative or a distributor who provides purchase of the Vieworks' product.
- Operation and maintenance should be done in strict compliance with the operation instructions contained in the manual.
- The system, in whole or in part, cannot be modified in any way without prior approval from Vieworks.
- Before authorizing any person to operate the system, verify that the person has read and fully understood the User Manual. The owner should make certain that only properly trained and fully qualified personnel are authorized to operate the equipment. An authorized operators list should be made and maintained.
- It is important that this User Manual be kept at hand, studied carefully, and reviewed periodically by the authorized operators.
- If a malfunction occurs, do not use this device until qualified personnel correct the problem.

1.4.2 Power Supply



- Do not operate the equipment using any type of power supply other than the one indicated on the rating label. Doing so may result in a fire or electric shock.
- Do not supply power to more than one piece of equipment using the same AC outlet for this product. Doing so may result in a fire or electric shock.
- Do not connect multiple portable socket-outlets or extension cords to the system. Doing so may result in a fire or electric shock.
- Always connect the three-core power cord plug to a grounded AC power outlet.
- Ground the equipment to an indoor grounded connector. Connect all the grounds for the system to a common ground.
- Do not connect the AC or DC power cable to the product with the power applied. Failure to do so may result in damage to the product.
- Do not use any power source other than the one provided with this product. Otherwise, a fire or electric shock may be caused due to a leakage.
- The owner should ensure continuous power supply to the system with voltage and current according to the product specifications. If the system is powered unstably during its

operation, we recommend you install a UPS (Uninterrupted Power Supply) to avoid loss of data.

- To make it easy to disconnect the plug at any time, avoid putting any obstacles near the outlet. Otherwise, it may not be possible to disconnect the plug in an emergency.
- Do not place heavy objects, such as medical equipment on cables and cords. Do not pull, bend, bundle, or step on the cables and cords to protect their sheath from being damaged.
- Do not alter the cords. Doing so may damage the cords, which could result in a fire or electric shock.
- Securely plug the power cord into the AC outlet. If contact failure occurs, or if dust/metal objects come into contact with the exposed metal prongs of the plug, fire or electric shock may result.
- Turn OFF the power to each piece of equipment before connecting or disconnecting the cords. Otherwise, you may get an electric shock that could result in death or serious injury.
- Hold the plug or connector when you disconnect the cord. If you pull the cord, the core wire may be damaged, resulting in a fire or electric shock.
- Do not handle the product with wet hands. You may experience an electric shock that could result in death or serious injury.

1.4.3 Handling



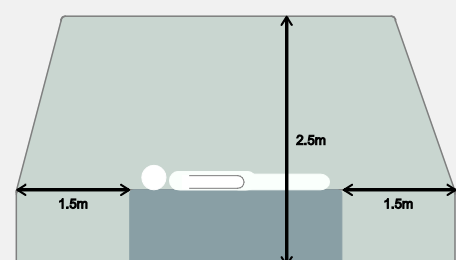
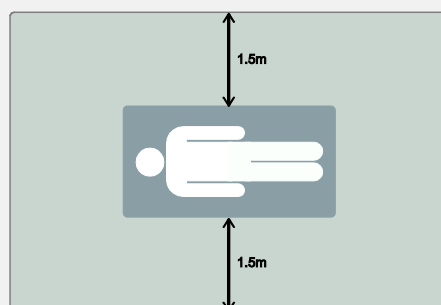
- Do not disassemble or modify the product. It can cause a product malfunction, electric shock, or fire. Touching the parts may cause death or serious injury.
- Only use the parts specified in this user's manual. If you want to use other parts, confirm with the supplier of the parts in advance.
- Be careful not to cause liquid or metal objects such as needles and clips that may damage the product to get into the product.
- If the product has been affected by an impact or vibration due to the user's misuse, make sure that you perform a product inspection before using it again.
- If an X-ray is taken while the patient is moving, the quality of the picture may be affected. Make sure that the patient maintains a fixed posture as much as possible.
- If there is harmful liquid on the surface of the detector, the patient may be exposed to a risk of infection or may suffer rashes. In this case, wash the detector or use a disposable cover. When using the product for a bleeding patient, use a disposable cover whenever possible.
- For safety reasons, be sure to turn OFF the power of the equipment when the inspections indicated in this manual are going to be performed.
- Soaking the detector in water can cause a product malfunction or electric shock. Follow the instructions in "Cleaning and Sterilization" of this document to wash the detector.
- It is recommended that the detector is used on a flat table. Especially, if the product is used on an uneven surface such as a patient's bed, it may be damaged or its lifespan may be affected when a load heavier than the specified limit is applied.

- Organize the connecting cables while using the product so that they do not tangle with the body of the user or the patient. Failure to do so may injure the user or the patient, or cause the product to fall, which can result in a malfunction.
- Be careful not to touch the patient at the same time when touching the exterior and connectors of the detector and IO BOX. An electric shock may occur.

1.4.4 Environment of Use



- Do not install the equipment in any of the locations listed below. Doing so may result in failure or malfunction, equipment falling, fire, or injury.
 - Close to facilities where water is used.
 - Where it will be exposed to direct sunlight
 - Close to the air outlet of an air-conditioner or ventilation equipment
 - Nearby the electric heating appliance such as a heater
 - Where the power supply is unstable
 - In a dusty environment
 - In a saline or sulfurous environment
 - Where temperature or humidity is higher than the operating temperature
 - Where there is freezing or condensation
 - In areas prone to vibration
 - On an incline or in an unstable area
- This product may malfunction due to electromagnetic interference (EMI) caused by telecommunication devices, transceivers, electronic devices, etc. To prevent the electromagnetic wave from badly influencing the product, be sure to avoid placing it in close proximity to the product. Or, change direction or position of the product or move into the shielded place to reduce electromagnetic interference.
- This equipment is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- Conductive fluids that drain into the active circuit components of the system may cause short circuits that can result in electrical fire. Therefore, do not place fluids or food on any part of the system.
- To avoid electric shocks and burns caused by use of the wrong type of fire extinguisher, make sure that the fire extinguisher at the site has been approved for use on electrical fires.
- Non-medical devices such as IO BOX cannot be used in patient's vicinity.



1.4.5 Temperature



- The heat generated by this product is designed not to be delivered to the patient.
- When using this product, please be careful not to exceed the recommended operating temperature of our company.

1.4.6 Problem Management



- Should any of the following occur, immediately turn OFF the power to each piece of equipment, unplug the power cord from the AC outlet, and contact sales representative or distributor.
 - When there is smoke, an odd smell or abnormal sound.
 - When liquid is spilled into the equipment or a metal object is entered through an opening.
 - When the equipment has been dropped and is damaged.

1.4.7 Maintenance and Inspection



- Do not use or store the equipment near flammable chemicals such as acetone, benzene, thinner, etc. If chemicals are spilled or evaporated, it may result in a fire or electric shock through contact with electric parts inside the equipment.
- If any flammable cleaning agent is used for the product, be sure to take care when using them.
- When the equipment is going to be cleaned, be sure to turn OFF the power of the equipment and unplug the power cord from the AC outlet. Never use thinner, acetone, benzene or any other flammable cleaning agent. Otherwise, it may result in a fire or electric shock.
- Clean the plug of the power cord periodically by unplugging it from the AC outlet and removing dust or dirt from the plug, its periphery, and AC outlet with a dry cloth. If the cord is kept plugged in for a long time in a dusty, humid or sooty place, dust around the plug will attract moisture, and this could cause insulation failure that could result in a fire.
- Be sure to turn OFF the power of the equipment while cleaning. Otherwise, a fire or electric shock may occur.

1.5 Product Usage Guide



- When using the equipment, take the following precautions. Otherwise, problems may occur and the equipment may not function correctly.

1.5.1 Calibration

- To ensure optimal system performance, it is important to verify that the system is calibrated correctly.
- Check if the calibration is performed after the equipment is completed to be installed or repaired.
- Do not try to use the system if the calibration has not been performed.
- Calibration can be performed with the calibration data provided on the CD.



- The calibration result can be different by the use environment. Therefore, if the result performed with the calibration data in the detector is not satisfied, you can create the data at the field in person by using the calibration software (Setup).

1.5.2 Left/Right Marker

- The operator is responsible for making a correct and clear mark on the left or right side of the image.
- The software includes a function to mark the image with **L** (left) or **R** (right) while acquiring the image through printing and archiving.
- Prepare an alternative way to prevent any confusion if the operator does not choose to use **L/R** marks.

1.5.3 Image Backup

- To avoid missing images which might result in a patient being exposed to additional dose of radiation, it is important to send images to PACS or backup images by using film or external storage media (CD, DVD, HDD, USB).
- If the hard disk of your workstation is about to be full, the operator should backup images to somewhere else and delete them to make storage (memory) space in the hard disk for new patients.



- The image backup should be done as a routine operation for every patient and image.

1.5.4 Use Limitations

- Viewworks software has the engineer mode operated by inputting the administrator password only.
- This mode should be operated by the person who is qualified by Viewworks.

1.5.5 Disposal

- Disposal of this product in an unlawful manner may have negative effects on human health and the environment.
- Be sure to follow the procedure which is in conformity with the laws and regulations applicable in your area.

1.5.6 Pediatric Application

- Every request should be reviewed by a pediatric radiologist prior to beginning the examination to ensure that an appropriate study is being performed.
- If the technologist notices an unusual request, he or she must contact a radiologist in charge. Examples include orders- a Full Cervical, Thoracic, and Lumbar Spine series. The pediatric radiologist should contact the ordering physician and decide which study is best for the pediatric patient.
- The technologist should use a proper technique considering the patient's size to decrease the radiation dose when he or she acquires diagnostic images.
- ALL pediatric patients shall be shielded for their X-ray examinations, except for when the shield will obscure the region of interest, as in a pelvic or SI joint X-ray for trauma or arthritis, or when it is physically or clinically unreasonable to shield the patient.
- For routine Hip X-Rays, ALL male children shall have their scrotum shielded using the small gonadal shield while females may not be shielded because doing so would obscure the hips.
- To minimize motion in infants and young children, swaddle the infant. Use distraction tools to improve cooperation and projectors with child-friendly themes, music, toys with flashing lights or music, child-friendly images on the ceiling or walls, singing, counting, and a parent reading and talking to the child through the console all can help reduce anxiety and comfort the child.
- A scoliosis series will consist of a single frontal standing view of the spine. No lateral view or supine view is needed, unless specifically asked for by the Orthopedist or Radiologist. If the female's breasts can be shielded without obscuring the spine, breast shields should be used.

1.5.7 Before Exposure

- Be sure to check the equipment daily and confirm that it works properly.
- Sudden heating of the room in cold areas will cause condensation to form on the equipment. In this case, wait until the condensation evaporates before performing an exposure. If the equipment is used while condensation is formed in it, problems may occur in the quality of captured images.
- When an air-conditioner is used, be sure to raise/lower the temperature gradually so that difference between the temperature in the room and in the equipment does not occur, to prevent condensation.

1.5.8 During Exposure

- This equipment is not protected (sealed) against liquids such as blood and medicine in the operating room. If necessary, wrap the equipment in a disposable cover when using it.
- Do not use the detector near devices generating a strong magnetic field. Doing so may produce image noise or artifacts.

1.5.9 Operating and Storage Environment

- This equipment is mainly used in the X-ray exposure room and hospital wards. To use it in other places, consult Viewworks' sales representative or a distributor.
- Do not expose this equipment to high temperatures and/or high humidity. Malfunctions may occur.
- When not in use, keep the products in a safe location.
- Be sure to use and store this equipment under the conditions described below.

Item	Operation	Storage & Transportation
Temperature	+10 ~ +35°C	-15 ~ +55°C
Humidity	30 ~ 85% (Non-condensing)	10 ~ 90% (Non-condensing)
Atmospheric pressure	700 ~ 1060 hPa	500 ~ 1060 hPa
Shock	20G	30G
Vibration	2G	5G

1.5.10 Others

- Do not use this equipment in combination with peripherals such as defibrillators or large electric motors as these may cause power-supply noise or power supply voltage variations. Doing so may prevent normal operation of this equipment and peripherals.

2. Product

This section gives an instruction about the product components and their specifications.

Product Specifications
VIVIX-S 1717V Detector
IO BOX (FXRI-01A)

2.1 Product Specifications

2.1.1 Detector

Item	Specifications
Model	<ul style="list-style-type: none"> FXRD-1717VA (CsI) FXRD-1717VB (Gadox)
Image Sensor	<ul style="list-style-type: none"> a-Si (Amorphous Silicon)
X-ray Scintillator Type	<ul style="list-style-type: none"> FXRD-1717VA : CsI: TI (Thallium doped Caesium Iodide) FXRD-1717VB : Gd₂O₂S:Tb (Gadolinium oxysulfide)
Pixel Pitch	<ul style="list-style-type: none"> 0.14mm (140μm)
Field of View	<ul style="list-style-type: none"> 17" x 17"
Active Area (H x V)	<ul style="list-style-type: none"> 430.08mm x 430.08mm
Active Array	<ul style="list-style-type: none"> 3072 x 3072 pixels
Effective Area	<ul style="list-style-type: none"> FXRD-1717VA: 426.72mm x 426.72mm FXRD-1717VB: 426.72mm x 426.72mm (Min.)
Effective Array	<ul style="list-style-type: none"> FXRD-1717VA : 3048 x 3048 FXRD-1717VB : 3048 x 3048 (Min.)
Grayscale	<ul style="list-style-type: none"> 16bit
Spatial Resolution	<ul style="list-style-type: none"> 3.5 lp/mm (Min.)
Power Consumption	<ul style="list-style-type: none"> Max. 15 W
Dimensions (H x W x D)	<ul style="list-style-type: none"> 460mm x 460mm x 15.5mm

2.1.2 IO BOX

Item	Specifications
Model	<ul style="list-style-type: none"> FXRI-01A
Power supply	<ul style="list-style-type: none"> Input: DC +24V 1A, 24W
Dimension (H x W x D)	<ul style="list-style-type: none"> 106.5 mm x 84.5 mm x 25.6 mm
Weight	<ul style="list-style-type: none"> 0.3 kg

2.2 VIVIX-S 1717V Detector

VIVIX-S 1717V is designed to acquire digital images by collecting x-ray signals and several conversion processes. You can use the acquired image (17" x 17" film size) diversely depending on the purpose of use.

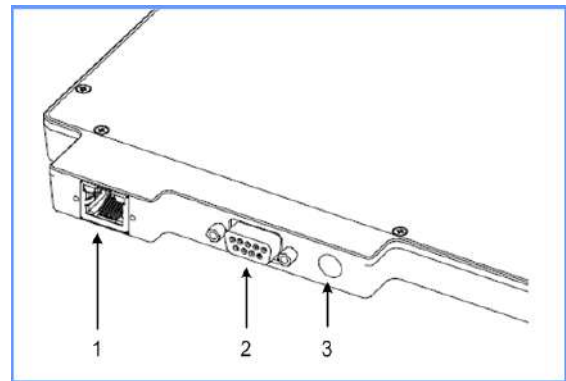
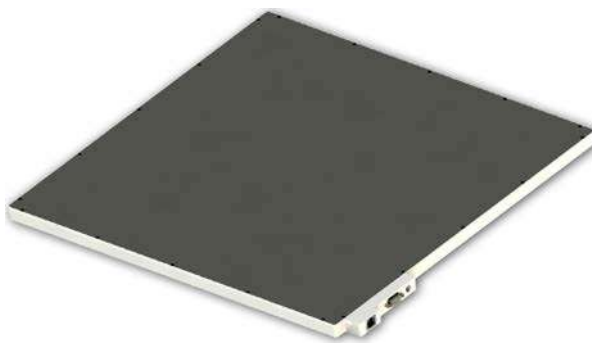


- The **VIVIX-S 1717V** detector is one of the VIVIX-S detector models manufactured by Vieworks Co., Ltd.



- Refer to VIVIX-S 1717V Specification for the detailed specifications and drawings.

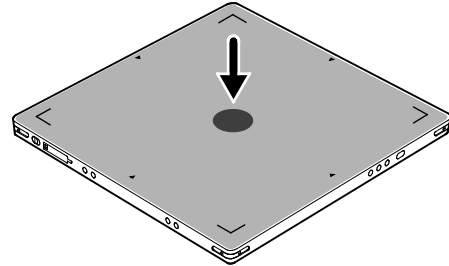
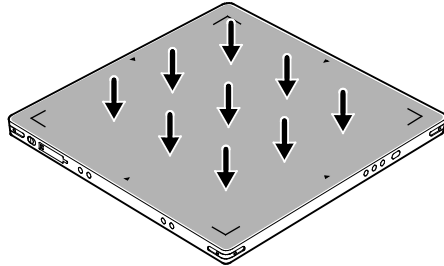
2.2.1 Functions



Name		Description
1	LAN Port	<ul style="list-style-type: none"> • Gigabit Ethernet port (1000BASE-T) • Data communication between the detector and PC
		• D-SUB 9 pins, Male
2	IO Port	<ul style="list-style-type: none"> • DC 24V Input & IO Interface • D-SUB connector Power Pin map (+24V Pin: 3, 8, GND Pin: 4, 9) (24V, 0.625A or more recommended)
		• Detector communication and transmission status (orange-green flashing)
3	Status Light [Transmission]	• Detector boot status (orange)
	Status Light [STATUS]	• Power on state (green)
	Status Light [POWER]	

Load Limit of Detector

Uniform load	Local load
Over the whole surface	Center diameter 40 mm
Max. 150 kg	Max. 100 kg



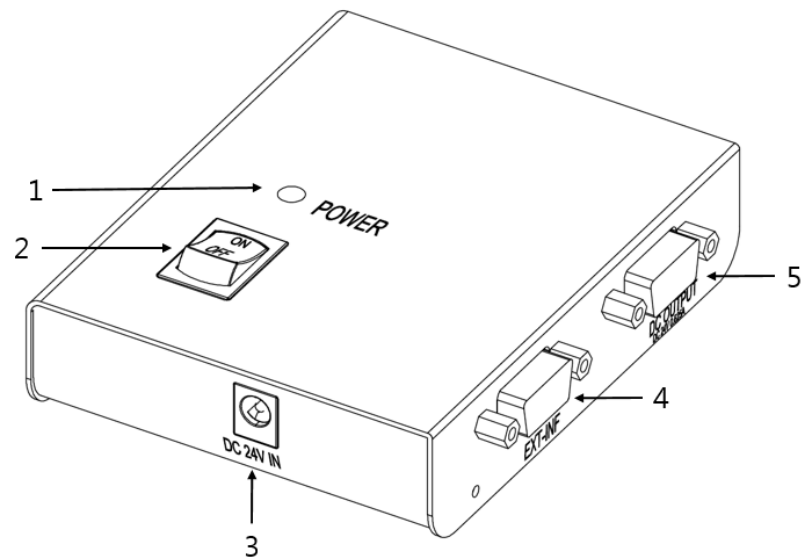
- Do not let the patient or object heavier than load limit be on the detector. Then, detector can be damaged.
- Do not apply excessive load to the product. The internal sensor may be damaged or the image quality may be affected.

2.3 IO BOX (FXRI-01A)

Power is supplied to the detector via IO (Input / Output) BOX.

2.3.1 Functions

Front Side



No.	Name	Description
1	LINK LED	<ul style="list-style-type: none">Indicates the status of power
2	Power Switch	<ul style="list-style-type: none">Power switch
3	DC Power Input Connector	<ul style="list-style-type: none">DC +24V
4	Generator Connector	<ul style="list-style-type: none">Interlocking with X-ray generatorD-SUB 15p, Female
5	DC Power Output Connector	<ul style="list-style-type: none">DC +24V outputPower to the detectorIO InterfaceD-SUB 9p, Female

3. Preparing for System Operation

This chapter guides you how to prepare the detector operation.

Checking System Configuration

Booting up the Detector and IO BOX

3.1 Checking System Configuration

You can organize wired connection between the **VIVIX-S 1717V** detector and **IO BOX**. You can also choose other connection ways suitable for the use environment in case of need. Check the connection method before operation.



- Refer to **VIVIX-S 1717V Service Manual** for the detailed information about system configuration.

3.2 Booting up IO Box and Detector

- 1 Turn on the power switch at the front side of IO BOX.
- 2 Check if the power switch of IO BOX lights up green.
- 3 Check if the status LED of detector is blinking in green



- When the power switch of IO BOX lights up green, it means that the power is applied normally.
- When you boot the IO BOX, the detector also starts booting.



- If the LED of the detector lights green, it indicates that the power is normally applied.
- If the POWER LED on the detector does not light, check again that the IO Interface cable is connected properly.

3.2.1 Checking Status LED of Detector

Power

- If the power is normally applied, the LED will light green.

Initializing

- The LED will light orange when the detector is in the initialization status.
- When the detector completes booting normally, the LED will light green.

Transmission

- When the detector transmits data, the LED flashes orange-green cross.

Summary List of Detector Status LED

Status	LED
Power ON	Lights green
Booting	Lights in orange
Image Acquisition	Green / orange cross flashing
Power OFF	OFF



- If the detector LED blinks abnormally, refer to troubleshooting in the 1717V Service Manual to check if communication or system error is occurred.

3.2.2 Checking LED of IO BOX

Status	LED
Power ON	Lights green
Power OFF	OFF

4. Inspection and Cleaning

This chapter provides instructions on how to inspect and clean the product.

Product Inspection

Cleaning and Disinfection

4.1 Product Inspection



- To use products safely, make sure to check the products before use. If problems occur during inspection or the product is impossible to repair, consult the sales representative in Viewworks or a relevant engineer.

4.1.1 Daily Inspection

Before or after using the detector and other surrounding devices, check below items daily.

Item	Description
Detector	<ul style="list-style-type: none"> • Ensure that there are no loose screws or breaks.
Cable	<ul style="list-style-type: none"> • Ensure that cables are not damaged and cable jackets are not torn. • Ensure that the power cord plugs are securely connected to both AC inlet and AC outlet of the equipment.

4.1.2 Performance Inspection

Check the detector and other devices periodically as follows.

Item	Period	Description
Resolution	Half-yearly	<ul style="list-style-type: none"> • Check the resolution of the detector through resolution chart or using a phantom.
Sensitivity	Half-yearly	<ul style="list-style-type: none"> • Evaluate the characteristic of the detector through checking gray value of the images made by X-ray dose amount reaching to the surface of the detector.
Calibration	Half-yearly	<ul style="list-style-type: none"> • Updating calibration data. (Offset → Gain → Defect) • Proceed to calibrate when X-ray Generator, Tube, Collimator or exposure environment are changed.



- The inspection of detector resolution can be conducted by a user or a service engineer.
- Sensitivity and calibration should be conducted by an authorized service engineer who Viewworks grants.

4.2 Cleaning and Disinfection

After using the detector and peripheral equipments for examination, use germicidal disinfecting wipes or cloth with mild diluted disinfectant detergent to clean surfaces of the product.



- In case the surface or narrow space of equipment is contaminated by contact with blood or other body fluids of a patient, make sure to clean and disinfect it to protect the patients and users from infection.

4.2.1 Recommended Detergent Foam

Recommended disinfectant wipe

- Super Sani-cloth Plus Wipes by PDI
- Sani-cloth Active Wipes multi Surface (Alcohol Free/Sans alcool) by PDI
- Sani-cloth CHG 2% by PDI
- Cavi Wipes by Kerr Total Care
- Sporicidal Wipes by Clinell
- Universal Wipes by Clinell

Recommended disinfectant product

- Surfa'safe by Anios
 - Storage temperature: 5°C ~ 35°C



- Other Disinfectant detergent compliant to conditions listed below may be used following proper procedures according to its own manual.
 - European Biocidal Products designed for surface disinfection (Directive 98/8/EC)
 - Detergent with composition of Didecyltrimethylammonium chloride, polyhexamethylene biguanide hydrochloride.

4.2.2 How to Use Detergent Foam

- 1 Prepare the disinfectant detergent and a clean and dry non-woven cloth.
- 2 Use the spray bottle to spray detergent to the cloth and clean the equipment.
- 3 Clean residue on the equipment with its power off.
- 4 Conduct cleaning once a week or in case of contamination.



- Do not re-use wipes.
- Be careful to use disinfectant detergent which can cause irritation to eyes and skin.
- Use in well-ventilated areas, and wear gloves at all times.
- Do not clean the equipment with its power on.
- Do not use abrasive brush and scraper to clean the product.
- Do not make liquid soak when cleaning battery bay and a connector on side of products.

5. Regulatory Information

This section gives explanation about the regulatory information and standard related to the products

Medical Equipment Safety Standards
Labels and Symbols

5.1 Medical Equipment Safety Standards

5.1.1 Medical Equipment Classification

Item	Description
Type of protection against electrical shock	Class I
Degree of protection against electrical shock	Operator accessible
Degree of protection against ingress of water and dust	IPX0 (Degrees of protection against ingress of water and dust provided by enclosure.)
Operation mode	Continuous operation
Flammable anesthetics	Not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

5.1.2 Product Safety Standard

South Korea

Electrical and mechanical safety tests shall be in accordance with IEC 60601-1.

Test for the prevention of electromagnetic interference: According to IEC 60601-1-2.

U.S.A / Canada

Item	
IEC 60601-1: 2012 (ed.3.1)	Medical electrical equipment- Part 1: General requirements for safety.
UL 60601-1 (ed.3.1)	-
CAN/CSA-C22.2 NO. 60601-1:14	Medical electrical equipment –Part 1: General requirements for basic safety and essential performance
IEC 60601-1-2: 2014 (ed.4)	Medical electrical equipment-Part 1-2: Collateral standard: Electromagnetic compatibility
IEC 62304:2006	Medical device software-software life cycle processes
ISO 14971:2012	Medical device – Application of risk management to medical devices

European Union

Item	
MDD (Medical Device Directive)	(93/42/EEC as amended by 2007/47/EC) Medical Device Directive
EN ISO 13485:2012	Medical devices – Quality Management systems – Requirements for regulatory purposes
IEC 60601-1: 2012 (ed.3.1)	Medical electrical equipment- Part1: General requirements for safety
IEC 60601-1-2: 2014 (ed.4)	Medical electrical equipment -Part 1-2: Collateral standard: Electromagnetic compatibility-Requirements and tests
IEC 62304:2006	Medical device software-Software life cycle processes
ISO 14971: 2012	Medical device – Application of risk management to medical devices

5.2 Guidance and Manufacturer's Declaration for EMC



- This device has been tested for EMI/EMC compliance, but interference can still occur in an electromagnetically noisy location. Attempt to maintain a suitable distance between electrical devices to prevent malfunction.



- Obtaining diagnostic images and transferring them to a PC (workstation) are the essential performance of VIVIX-S 1717V. If the required performance is degraded or lost due to electromagnetic interference, images that are not suitable for diagnosis may be obtained or the image may be lost.

5.2.1 Electromagnetic Emissions

The Equipment Under Test (EUT) is intended for use in the electromagnetic environment specified below.

Immunity test	Compliance	Electromagnetic Environment
RF Emissions (CISPR 11)	Group 1	The EUT uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions (CISPR 11)	Class A	The EUT is directly connected to a low voltage power supply network, and can be used in all facilities except the ones that supply voltage to home facilities or buildings.
Harmonic emissions (IEC 61000-3-2)	Class A	
Voltage fluctuations/ Flicker emissions (IEC 61000-3-3)	Complies	The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

5.2.2 Electromagnetic Immunity

The **VIVIX-S 1717V** system has secured the electromagnetic compatibility in the following environments. It is recommended that you use the product only in the specified electromagnetic environment.

Electrostatic Discharge (ESD) IEC 61000-4-2

Item	Description
Immunity test	<ul style="list-style-type: none"> Electrostatic discharge (ESD) IEC 61000-4-2
IEC 60601 test condition	<ul style="list-style-type: none"> Contact $\pm 8\text{kV}$ Air $\pm 15\text{kV}$
Compliance Level	<ul style="list-style-type: none"> Contact $\pm 8\text{kV}$ Air $\pm 15\text{kV}$
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.

Electrical Fast Transient/Burst IEC 61000-4-4

Item	Description
Immunity test	<ul style="list-style-type: none"> Electrical fast transient/burst IEC 61000-4-4
IEC 60601 test condition	<ul style="list-style-type: none"> Power supply lines $\pm 2\text{kV}$ Input / output lines $\pm 1\text{kV}$
Compliance Level	<ul style="list-style-type: none"> Power supply lines $\pm 2\text{kV}$ Input / output lines $\pm 1\text{kV}$
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Main power quality should be that of a typical commercial or hospital environment.

Surge IEC 61000-4-5

Item	Description
Immunity test	<ul style="list-style-type: none"> Surge IEC 61000-4-5
IEC 60601 test condition	<ul style="list-style-type: none"> Differential mode $\pm 1\text{kV}$ Common mode $\pm 2\text{kV}$
Compliance Level	<ul style="list-style-type: none"> Differential mode $\pm 1\text{kV}$ Common mode $\pm 2\text{kV}$
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Main power quality should be that of a typical commercial or hospital environment.


Voltage Dips, Short Interruptions/Voltage Variations on Power Supply Input Lines IEC 61000-4-11

Item	Description
Immunity test	<ul style="list-style-type: none"> Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11
IEC 60601 test condition	<ul style="list-style-type: none"> 100% reduction for 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 and 315 degrees 100% reduction for 1 cycle 30% reduction for 25/30 cycles at 0 degree 100% reduction for 250/300 cycles (5 sec.)
Compliance Level	<ul style="list-style-type: none"> 100% reduction for 0.5 cycle at 0, 45, 90, 135, 180, 225, 270 and 315 degrees 100% reduction for 1 cycle 30% reduction for 25/30 cycles at 0 degree 100% reduction for 250/300 cycles (5 sec.)
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Main power quality should be that of a typical commercial or hospital environment. If the user of the EUT image intensifier requires continued operation during power mains interruptions, it is recommended that the EUT image intensifier be powered from an uninterruptible power supply or a battery.

Power Frequency (50/60 Hz) Magnetic Field IEC 61000-4-8

Item	Description
Immunity test	<ul style="list-style-type: none"> Power frequency (50/60 Hz) magnetic field IEC 61000-4-8
IEC 60601 test condition	<ul style="list-style-type: none"> 30 A/m
Compliance Level	<ul style="list-style-type: none"> 30 A/m
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Conducted RF IEC 61000-4-6 / Radiated RF IEC 61000-4-3

Item	Description
Immunity test	<ul style="list-style-type: none"> Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3
IEC 60601 test condition	<ul style="list-style-type: none"> 3 Vrms 150 kHz to 80 MHz 6 Vrms in the ISM bands 150 kHz to 80 MHz 3 V/m 80 MHz to 2.7 GHz
Compliance Level	<ul style="list-style-type: none"> 3 Vrms 150 kHz to 80 MHz 6 Vrms in the ISM bands 150 kHz to 80 MHz 3 V/m 80 MHz to 2.7 GHz
Electromagnetic Environment - Guidance	<ul style="list-style-type: none"> The electromagnetic field strength of a stationary RF transmitter determined by an electromagnetic test survey must be less than the compliance level of each frequency range. Interference may occur in the vicinity of equipment marked with .



- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.



- Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which EUT is used exceeds the applicable RF compliance level above, EUT should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating EUT.
- Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V1] V/m.
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30cm (12 inches) to any part of the VIVIX-S 1717V, including cables specified by the Vieworks. Otherwise, degradation of the performance of this equipment could result.





5.3 Labels and Symbols

The **VIVIX-S 1717V** detector and relevant components have labels attached on them. The contents and locations of each label are indicated below.



5.3.1 Label

Detector

VIVIX-S 1717V		CE 2460 Digital Imaging System
Model No (240) : FXRD-1717VA SN (21) :		
Rating : 24V \equiv Max. 0.625A 		RN :
Date of manufacture (11) :		
 MEDICAL EQUIPMENT ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)		 Electric Shock  Rx only
 Manufacturer : VIEWWORKS Co., Ltd. 41-3, Burim-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Rep. of KOREA MADE IN KOREA		

VIVIX-S 1717V		CE 2460 Digital Imaging System
Model No (240) : FXRD-1717VB SN (21) :		
Rating : 24V \equiv Max. 0.625A 		RN :
Date of manufacture (11) :		
 MEDICAL EQUIPMENT ANSI/AAMI ES60601-1 (2005) + AMD 1 (2012), CAN/CSA-C22.2 No. 60601-1 (2014)		 Electric Shock  Rx only
 Manufacturer : VIEWWORKS Co., Ltd. 41-3, Burim-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Rep. of KOREA MADE IN KOREA		

IO BOX

VIVIX-S	CE 2460 IO BOX
Model No : FXRI-01A SN : 	
Rating : 24V \equiv Max. 1.0 A 	
Date of manufacture : RN :	
 Electric Shock 	
 Manufacturer : VIEWWORKS Co., Ltd. 41-3, Burim-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14055 Rep. of KOREA MADE IN KOREA	

5.3.2 Product Serial Number

Composition

The product serial numbers are composed as follows.

V	G	D	A	B	A	0	0	1
Item		Composition	Year		Month	Manufacturing number		



- The serial number will be updated in case of follows;
 - Mass production or a large amount of order.
 - Exterior alteration.
- Item code will be produced based on internal management standard of vieworks.
- Composition code is consisted as;
 - D: Detector
 - I: IO BOX
- Range of manufacturing number is 001 ~ 999.

Initial Per Year

11	12	13	14	15	16	17	18	19	20
AA	AB	AC	AD	AE	AF	AG	AH	AI	BJ















Initial Per Month

1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	E	F	U	V	W	X	Y	Z

Composition of Serial Number for Each Item

Model	Composition	Serial Number
FXRD-1717VA	Detector	VGDAGA001
FXRD-1717VB	Detector	VHDAGA001
FXRI-01A	IO BOX	VGIAGA001 / VHIAGA001

5.3.3 Product Symbols

Symbol	Description
	Direct current
	Protective earth (Ground)
	Equipotential
	Attention, consult accompanying documents
	General warning sign
	Warning sign for electricity
	This mark shows compliance with both Canadian and U.S. safety requirements. With Respect to electric shock, fire, and mechanical hazards only.
	This mark shows compliance of the essential requirement and other relevant provisions of Directive 93/42/EEC as amended by 2007/47/EC.
	Non-ionizing radiation
	Read and understand all instructions and warning labels in the product documentation before using the equipment. Keep manual for future reference.
	Dealing with a medicine that can only be given by a prescription from a doctor and you should use a certain medication that a doctor recommended.
	General mandatory action sign
	This mark indicates that this equipment must be handled with care.
	Do not jolt or apply excessive load to the equipment.
	This mark indicates that the equipment must be collected separately under the Directive on Waste Electrical and Electronic Equipment 2002/96/EC (WEEE) in the European Union. (For European Union)

6. Information

This section gives overview information for service and warranty of the product.

Service Information

Warranty

Revision History

6.1 Service Information

6.1.1 Product Lifetime

The estimated product lifetime may be up to seven (7) years under the appropriate regular inspection and maintenance.

6.1.2 Regular Inspection and Maintenance

In order to ensure the safety of patients, operating personnel and third parties, and to maintain the performance and reliability of the equipment, be sure to perform regular inspection at least once a year. If necessary, clean up the equipment, make adjustments, or replace consumables.

There may be cases where overhaul is recommended depending on the conditions. Contact your sales representative or distributor for regular inspections or maintenance.

6.1.3 Repair

If a problem cannot be solved even after taking the measures indicated in Troubleshooting and contact your sales representative or a distributor for repairs. Please refer to the name label and provide the following information.

- Model name
 - **FXRD-1717VA / FXRD-1717VB Detector**
- Serial number
 - 9 digit-number on the product label
- Explanation of problem
 - Describe as detailed as possible.

6.1.4 Replacement Parts Support

Performance parts (parts required to maintain the functioning of the product) of this product will be stocked for seven years after discontinuance of production, to allow for repair.

6.2 Warranty

Viewworks Co., Ltd. follows the contract with each customer regarding the product warranty period. If any such product proves defective during this warranty period, Viewworks at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product. In order to obtain service under this warranty, Customer must notify Viewworks of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Viewworks with shipping charges prepaid.

Viewworks shall pay for the return of the product to customer if the shipment is to a location within the country in which Viewworks designated service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper or inadequate maintenance and care. Viewworks shall not be obligated to furnish service under this warranty to repair damage resulting from attempts by personnel other than Viewworks or its representatives to install, repair, or service this product, to repair damage resulting from improper use or connection to incompatible equipment or power source; or to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY VIEWWORKS WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. VIEWWORKS AND ITS VENDOR DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. VIEWWORKS RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. VIEWWORKS AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER VIEWWORKS OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

There are no warranties which extend beyond the description mentioned in this document

6.3 Revision History

Version	Date	Descriptions
1.0	2017-11-27	<ul style="list-style-type: none"> Initial Release
1.1	2018-01-02	<ul style="list-style-type: none"> Removed the following sentence in chapter 1.3.2 'Disclaimer' <ul style="list-style-type: none"> In no event shall Vieworks be liable for direct or indirect consequential damages arising from the use or unavailability of this product. Changed the chapter 1.4 Safety Information Removed the chapter 1.5.2 Distance Measurement Changed the chapter 6.2 'Warranty' <ul style="list-style-type: none"> Removed the warranty period Changed the European agent address and contact information
1.2	2018-03-27	<ul style="list-style-type: none"> Changed the chapter 1.2 'Intended Use' as 'Indications for Use' Changed the chapter 1.5.9 Operating and Storage Environment <ul style="list-style-type: none"> Modified shock / vibration specifications for detector operation and storage.
1.3	2018-04-18	<ul style="list-style-type: none"> Changed product label images in the chapter 5.2.1 Label.
1.4	2018-05-08	<ul style="list-style-type: none"> Added cautionary statement to chapter 1.4.2 'Power supply' Changed the chapter 1.5.9 Operating and Storage Environment Changed the chapter 5.1 Medical Equipment Safety Standards Added the chapter 5.2 Guidance and Manufacturer's Declaration of EMC



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Homepage: <http://www.viewworks.com>

**European representative: Obelis s.a**

Bd. Général Wahis 53

1030 Brussels, BELGIUM

Tel: +(32) 2.732.59.54

Fax: +(32) 2.732.60.03

E-mail: mail@obelis.net



High Frequency Generator

It makes us unique. ECORAY provides different types of generators solution for users. Since 1990, ECORAY brings steady and durable generators developed from its own technology providing a better image quality with reduced patient dose and extended X-ray tube lifetime. ECORAY's generators can be classified in two groups, 40 kHz frequency and 300 kHz frequency generators.

High frequency generator specifications


CATEGORY	32kW	40kW	50kW		65kW	80kW
KV range	40-125kV	40-125kV	40-150kV	40-150kV	40-150kV	40-150kV
Radiographic mA range	10~400	10~500	10~630	10~800	10~800	10~1,000
Exposure Time Range Accuracy	0.001 - 6 seconds (81 steps) ±2%					
Frequency	40kHz			Max. 300kHz		
mAs Range	0.1 ~ 400	0.1 ~ 500	0.1 ~ 630	0.1 ~ 800	0.1 ~ 800	0.1 ~ 1,000
High Voltage Ripple(TYP)	<1kV@100kV					
Automatic Exposure Control	Optional (up to 2 chambers)					
Power Supply Unit (PSU)	Optional (capacitor type)					
Anatomical Programming	288 APR			1,290 APR		
OP Console	LCD OP console / Touch screen OP console (Option)		LCD OP console			
Line Voltage (phase)	220-230VAC, 50/60Hz, Single Phase		380VAC, 50/60Hz, Three phase			
Automatic Line compensation	± 10%					
Weight	110KG			130KG		

HF Generators

High frequency generator appearance

		
32/40kW/ 50kW(630mA)	50kW(800mA)/ 65kW/80kW	32/40kW Capacitor bank

OP console specifications

CATEGORY	LCD OP console	Touch screen OP console	LCD OP console
Generator type	For 40kHz frequency generators		For 300kHz frequency generators
Operation	Membrane key touch	Touch screen & membrane key touch	Membrane key touch
Anatomical programming	288 APR		1,290 APR
AEC	AEC control (3 field ion chambers) (Option)		
DAP	DAP display (Option)		
Interfaces	HFG control serial port, Hand switch port, DR trigger LAN port, AEC chamber serial port, DAP serial port		
Appearance			

X-ray Tubes

ECORAY uses the worldwide Toshiba brand tubes. These tubes are reliable and robust with high efficient output for daily radiographic operations.

Toshiba tubes have rotating anode with housing assembly for the purpose of general diagnostic X-ray procedures and use specially processed Rhenium-tungsten faced molybdenum targets.

X-ray tube specifications

CATEGORY	E7239X	E7884X	E7252X	E7254X	E7869X
kV range	40-125	40-150	40-150	40-150	40-150
Small focus & max. energy	1.0mm/21kW	0.6mm/22kW	0.6mm/27kW	0.6mm/40kW	0.6mm/40kW
Large focus & max. energy	2.0mm/53kW	1.2mm/54kW	1.2mm/75kW	1.2mm/102kW	1.2mm/100kW
Anode speed (RPM@ 50/60/180Hz)*	2,700/3,200/ -		2,700/3,200/9,700		
Target angle	16°	12°	12°	12°	12°
maximum available mA @ Small focus*	350mA	300mA	400mA	500mA	500mA
maximum available mA @ Large focus*	600mA	700mA	1,000mA	1,000mA	1,000mA
Anode Heating Unit	140kHU	300kHU	300kHU	400kHU	600kHU
Anode cooling rate	667HU/sec	1,226HU/sec	667HU/sec	1,664HU/sec	2,465HU/sec
Tube housing heating unit	1,250kHU	1,250kHU	1,250kHU	1,339kHU	1,600kHU
Tube housing cooling rate	15kHU/min	15kHU/min	15kHU/min	16kHU/min	18kHU/min
Weight	16kg	16kg	18kg	20kg	24kg

Management System Certificate

Certificate No.:
9762-2017-AQ-KOR-NA-PS Rev. 1.0

Project No.:
PRJC-25089-2007-MSL-KOR

Initial Certification Date:
23 JULY 2017

Valid Until:
11 JANUARY 2022

This is to certify that the management system of:

ECORAY Co., Ltd.

60-10, Nanosandan 5-ro, Nam-myeon,
052-748 Jangseong-gun
Korea

Complies with the requirements of:

ISO 13485:2016/NS-EN ISO 13485:2016

The Certificate is valid for the following scope:

**Design, Manufacture, Distribution, Sales, Installation and Servicing of
Diagnostic X-ray Systems**

Place and Date:
Høvik, 14 January 2019



For:
DNV GL PRESAFE AS

Tone Kolpus

Tone Kolpus

The Certificate has been digitally signed.
See www.presafe.com/digital_signatures for more info

Notice: The Certificate is subject to terms and conditions as set out in the Certification Agreement. Failure to comply may render this Certificate invalid.

EC Certificate Full Quality Assurance System

Certificate No.:
12966-2018-CE-KOR-NA-PS Rev. 1.0

Project No.:
PRJC-25089-2007-MSL-KOR

Valid Until:
14 November 2023

This is to certify that the quality system of:

ECORAY Co., Ltd.

60-10, Nanosandan 5-ro, Nam-myeon, Jangseong-gun, Jeollanam-do, Korea

For design, production and final product inspection/testing of:

Diagnostic X-ray System

Has been assessed with respect to:

**The conformity assessment procedure described in Annex II
excluding section 4 of Council Directive 93/42/EEC on Medical
Devices, as amended**

and found to comply.

Further details of the product(s) and conditions for certification are given overleaf.

Place and Date:
Høvik, 14 March 2019



Notified Body No.: 2460

For:
DNV GL PRESAFE AS



Palani Damodharan

The Certificate has been digitally signed.
See www.presafe.com/digital_signatures for more info

Notice: The Certificate is subject to terms and conditions as set out in the Certification Agreement. Failure to comply may render this Certificate invalid.

EC Certificate

Full Quality Assurance System

Certificate No.:
12966-2018-CE-KOR-NA-PS Rev. 1.0

Project No.:
PRJC-25089-2007-MSL-KOR

Valid Until:
14 November 2023

Jurisdiction

Application of Council Directive 93/42/EEC of 14 June 1993, adopted as “Forskrift om Medisinsk Utstyr” by the Norwegian Ministry of Health and Care Services.

Certificate history:

Revision	Description	Issue Date
0.0	Original Certificate	14-11-2018
1.0	Change in EU Representative	14-03-2019

Products covered by this Certificate:

Product Description	Product Name	Class
Diagnostic X-ray System	• HF-525Plus	IIb
Digital Radiographic X-ray System	• EcoView9 Plus	IIb
Generator	• F40 (Add Model : F32)	IIb
Generator	• ECORAD75 (Add Model : ECORAD32, ECORAD40, ECORAD50, ECORAD65)	IIb

The complete list of devices is filed with the Notified Body

Sites covered by this certificate

Site Name	Address
ECORAY Co., Ltd.	60-10, Nanosandan 5-ro, Nam-myeon, 57248, Jangseong-gun, Korea

EU Representative

OBELIS S.A

Bd. Général Wahis 53, 1030 Brussels, BELGIUM

EC Certificate

Full Quality Assurance System

Certificate No.:
12966-2018-CE-KOR-NA-PS Rev. 1.0

Project No.:
PRJC-25089-2007-MSL-KOR

Valid Until:
14 November 2023

Terms and conditions

The certificate is subject to the following terms and conditions:

- Any producer (see 2001/95/EC for a precise definition) is liable for damage caused by a defect in his product(s), in accordance with directive 85/374/EEC, as amended, concerning liability of defective products.
- The certificate is only valid for the products and/or manufacturing premises listed above.
- The Manufacturer shall fulfil the obligations arising out of the quality system as approved and uphold it so that it remains adequate and efficient.
- The Manufacturer shall inform Presafe of any intended updating of the quality system and Presafe will assess the changes and decide if the certificate remains valid.
- Periodical audits will be held, in order to verify that the Manufacturer maintains and applies the quality system. Presafe reserves the right, on a spot basis or based on suspicion, to pay unannounced visits.

The following may render this Certificate invalid:

- Changes in the quality system affecting production.
- Periodical audits not held within the allowed time window.

Conformity declaration and marking of product

When meeting with the terms and conditions above, the producer may draw up an EC declaration of conformity and legally affix the CE mark followed by the Notified Body identification number of Presafe.

End of Certificate



X-RAY DOES NOT JOKE!



**RADIATION PROTECTION
APRONS AND RADIOLOGY
ACCESSORIES**

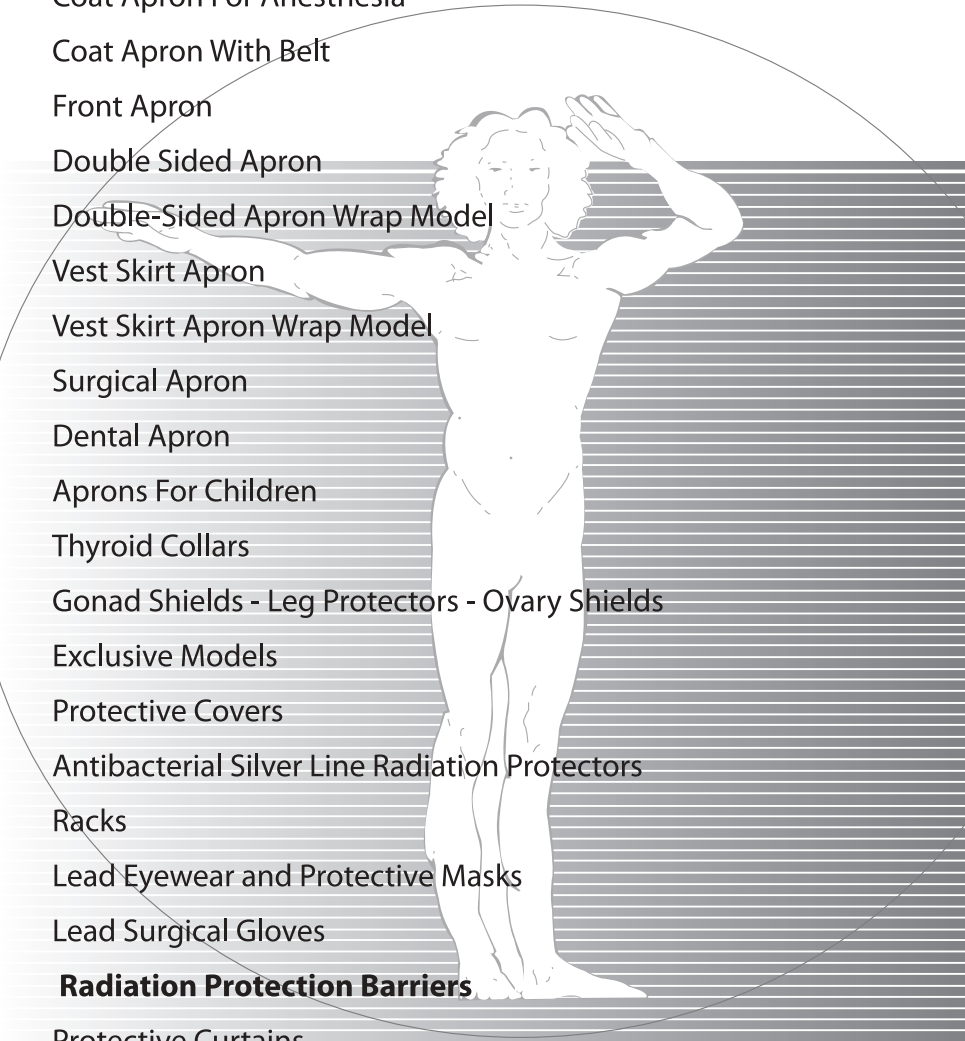


www.aktifxray.com | info@aktifxray.com

**CE
0120**

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Preface

Aktif Dis Ticaret was established in 1993 by the purpose of serving the medical sector.

Our first commercial activity was importing the document microfilm recorder which lets archiving easy to Turkish market. Started to representate world-famous radiology accessories manufacturers in Turkey in 1995.

Meanwhile we specialized in protective aprons by importing and distributing all over to Turkey. By the experience on this area Aktif Dis Ticaret started to manufacture protective lead and leadfree aprons with its own brand Aktif X-Ray since 2002. You can look into our Aktif X-Ray brand protective aprons and accessories, which manufactured by % 100 Turkish capital in Turkey and exported to world with warrant of Aktif Dis Ticaret, in our catalog.

We are at your service with our prioritized customer satisfaction understanding and total quality policy. Aktif X-Ray is registered to Aktif Dis Ticaret by Turkish Patent Institute.

Tel: +90 216 474 46 48 | Fax: +90 216 474 48 19
www.aktifxray.com | info@aktifxray.com

Quality Certificates – (SGS-ISO-UBB Authorization Certificate)



Useful Information and Recommendations

General Information about Protective Aprons

Operator should make the right selection for the protective aprons for maximum protection in order to protect his/her body’s most affected area by radiation. Especially chest, upper body, gonad and thyroid areas should be protected as a priority.

Aktif X-Ray protective aprons and accessories are manufactured by following the latest technology. With the utilization of advanced radiology instruments, we manufacture modern, light-weight, flexible, including rubber mixed lead models which have high protectivity. Aktif x-ray protective aprons and accessories are designed to be favorable for long term treatments to patients.



X-Ray Protection Apron

Points to Consider During Order Process

It is highly important to wear an apron that fits on your body size.



X-Ray Protection Apron

Recommended Sizes;

Chest

- Chest dimensions for Small size 80-90 cm
- Chest dimensions for Medium size 90-104 cm
- Chest dimensions for Large size 104-120 cm

Length

- 90 cm apron is for 1.45 to 1.55 cm length
- 100 cm apron is for 1.55 to 1.60 cm length
- 110 cm apron is for 1.65 to 1.70 cm length
- 120 cm apron is for 1.75 to 1.85 cm length
- 130 cm apron is for 1.85 to 1.90 cm length

Please indicate your color preferences. Pocket, name or logo can be added upon request. Additional snap fastener or rubber belt can be added upon request. (For double sided models)

Certification

As it is directly associated with cell protection, lead and lead free radiation protection aprons are in the scope of Personal Protection Equipment Regulations/Category 3 (complex design) and must be certificated as lead and lead free. Company can add approved notified body number next to CE sign on the product tag after a notified body certificates company’s production models with Article 11 A or 11 B.



Material Used

Protective Aprons and Accessories’ Cover Material

Standard Fabric: Oxford type fabric which is produced especially for x-ray protection aprons with color variations shown below are used in manufacturing. This fabric is long-lasting and easy wiping in term of hygiene.

Fabric Color Options



Color Options

		
Blue	Dark Blue	Gray
		
Pink	Burgundy	Green

Interior Material

The interior lead or lead free polymer rubber material used for Aktif X-Ray Protective Aprons and Accessories is imported abroad and used in accordance to international standards. Our protective aprons received appreciation in Turkey and many other countries with its high quality materials and perfect workmanship.

Our standard protective aprons and accessories are made out of a light compound which contains polymer and protective material mixture. Besides standard 0,125 mm LE, 0,175 mm LE, 0,25 mm LE protective material thicknesses, upon the customer request, we can produce aprons in different protective values.

Light Weight

This protective product we called as light weight is 22% lighter but has the same protective capability as the other brands’ similar products.

Lead Free

We can use nature friendly, easy recyclable lead free material with the same protection level of leaded one in our products upon customer request

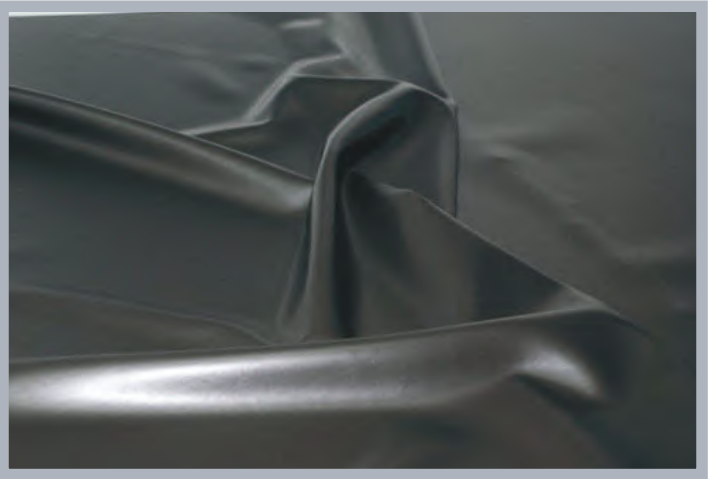
Protection Value

Light Weight and Lead Free protective materials’ protection value is at 80 kV,

0,50 mm Pb protective material protection ratio %99

0,35 mm Pb protective material protection ratio %97

0,25 mm Pb protective material protection ratio %95



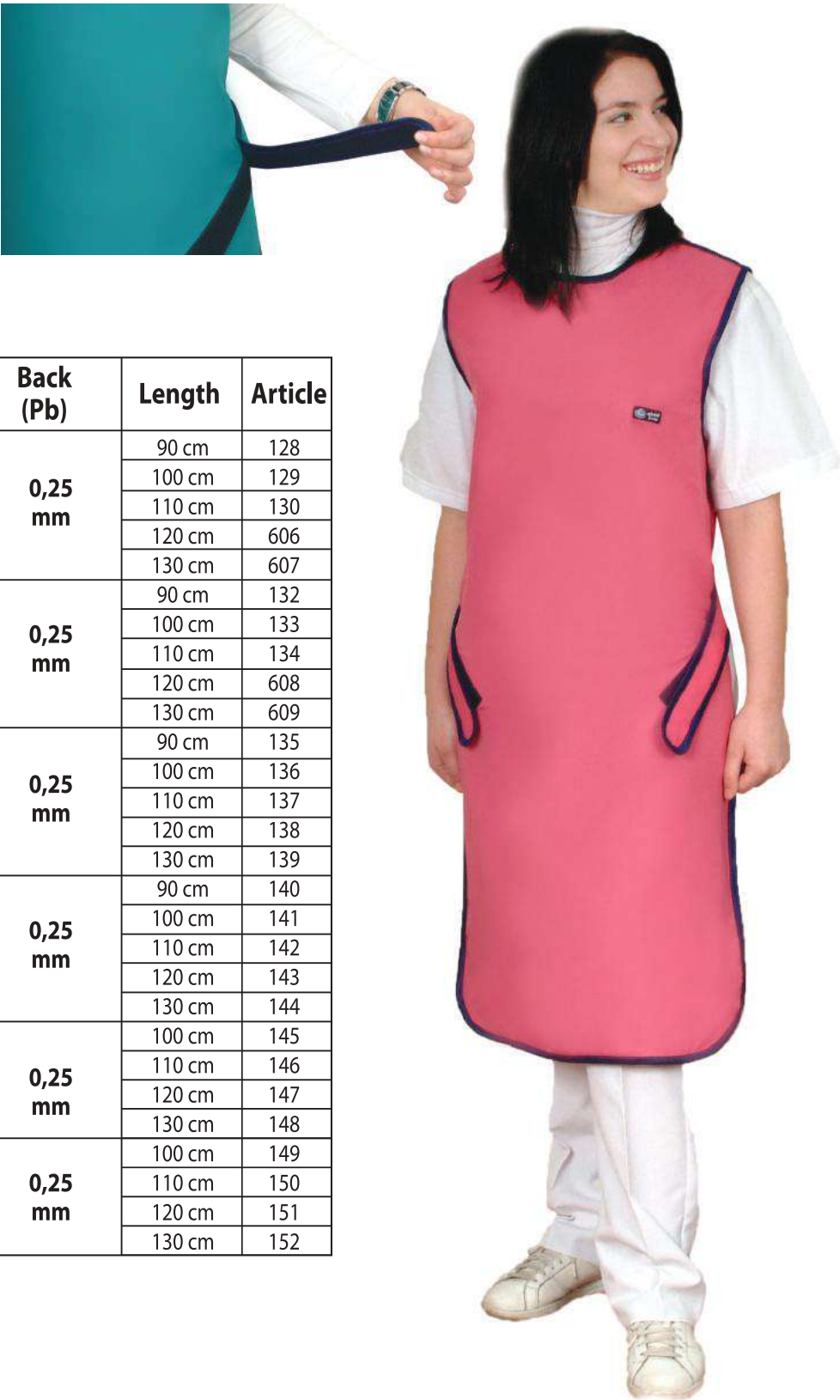
Coat Apron With Velcro

This model is designed for user who are exposed to x-ray for long term. It is an ideal model for protection against scattered x-ray expose. It provides maximum comfort, flexibility and lightness to users by its easy wear and take-off feature.

Thanks to its special design, perfectly covers the shoulder and body and it is adjustable according to user’s body for maximum protection even on shoulder bones.

Lead
LightWeight Lead
LeadFree (optional)

Lead
Front: 0,35 mm Pb or 0,50 mm Pb
Back: 0,25 mm Pb



Size	Front (Pb)	Back (Pb)	Length	Article
SMALL Shoulder Width 40 cm	0,35 mm	0,25 mm	90 cm	128
			100 cm	129
			110 cm	130
			120 cm	606
			130 cm	607
Hip Size 60 cm	0,50 mm	0,25 mm	90 cm	132
			100 cm	133
			110 cm	134
			120 cm	608
			130 cm	609
MEDIUM Shoulder Width 48 cm	0,35 mm	0,25 mm	90 cm	135
			100 cm	136
			110 cm	137
			120 cm	138
			130 cm	139
Hip Size 60 cm	0,50 mm	0,25 mm	90 cm	140
			100 cm	141
			110 cm	142
			120 cm	143
			130 cm	144
LARGE Shoulder Width 53 cm	0,35 mm	0,25 mm	100 cm	145
			110 cm	146
			120 cm	147
			130 cm	148
Hip Size 75 cm	0,50 mm	0,25 mm	100 cm	149
			110 cm	150
			120 cm	151
			130 cm	152

Coat Apron For Anesthesia

It provides very comfortable usage with its 16cm elastic belt and large velcro bands on back protection extension.

Users can keep wearing it during your routine x-ray procedures easily.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front: 0,35 mm Pb or 0,50 mm Pb
Back: 0,25 mm Pb



Size	Front (Pb)	Back (Pb)	Length	Article
SMALL Shoulder Width 40 cm	0,35 mm	0,25 mm	90 cm	153
			100 cm	154
			110 cm	155
			120 cm	156
			130 cm	157
Hip Size 60 cm	0,50 mm	0,25 mm	90 cm	158
			100 cm	159
			110 cm	160
			120 cm	161
			130 cm	162
MEDIUM Shoulder Width 48 cm	0,35 mm	0,25 mm	90 cm	163
			100 cm	164
			110 cm	165
			120 cm	166
			130 cm	167
Hip Size 60 cm	0,50 mm	0,25 mm	90 cm	168
			100 cm	169
			110 cm	170
			120 cm	171
			130 cm	172
LARGE Shoulder Width 53 cm	0,35 mm	0,25 mm	100 cm	174
			110 cm	175
			120 cm	176
			130 cm	177
Hip Size 75 cm	0,50 mm	0,25 mm	100 cm	179
			110 cm	180
			120 cm	181
			130 cm	182

Coat Apron With Belt

This model is mounted to extension of back protection and it is ideal to distribute the load on shoulders for long-term use.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front: 0,35 mm Pb or 0,50 mm Pb
Back: 0,25 mm Pb



Size	Front (Pb)	Back (Pb)	Length	Article
SMALL Shoulder Width 40 cm	0,35 mm	0,25 mm	90 cm	102
			100 cm	103
			110 cm	104
			120 cm	600
			130 cm	601
Hip Size 60 cm	0,50 mm	0,25 mm	90 cm	106
			100 cm	107
			110 cm	108
			120 cm	602
			130 cm	603
MEDIUM Shoulder Width 48 cm	0,35 mm	0,25 mm	90 cm	109
			100 cm	110
			110 cm	111
			120 cm	112
			130 cm	113
Hip Size 60 cm	0,50 mm	0,25 mm	90 cm	114
			100 cm	115
			110 cm	116
			120 cm	117
			130 cm	118
LARGE Shoulder Width 53 cm	0,35 mm	0,25 mm	100 cm	119
			110 cm	120
			120 cm	121
			130 cm	122
			100 cm	123
Hip Size 75 cm	0,50 mm	0,25 mm	110 cm	124
			120 cm	125
			130 cm	126

Front Apron

This more preferred model is designed for ones who are exposed to x-ray for long term. This is an ideal model for scattered x-ray from front side of operators. It gives maximum comfort, flexibility and lightness to operators with easy wear and take-off feature

It can be produced with belt and velcro upon customer request.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front : 0,35 mm Pb or 0,50 mm Pb



Size	Front (Pb)	Length	Article
SMALL Shoulder Width 40 cm	0,35 mm	90 cm	350
		100 cm	351
		110 cm	352
		120 cm	353
		130 cm	354
Hip Size 60 cm	0,50 mm	90 cm	355
		100 cm	356
		110 cm	357
		120 cm	358
		130 cm	359
MEDIUM Shoulder Width 48 cm	0,35 mm	90 cm	360
		100 cm	361
		110 cm	362
		120 cm	363
		130 cm	364
Hip Size 60 cm	0,50 mm	90 cm	365
		100 cm	366
		110 cm	367
		120 cm	368
		130 cm	369
LARGE Shoulder Width 53 cm	0,35 mm	100 cm	371
		110 cm	372
		120 cm	373
		130 cm	374
		100 cm	376
Hip Size 75 cm	0,50 mm	110 cm	377
		120 cm	378
		130 cm	379

Double Sided Aprons

This more preferred model is designed for long term x-ray exposure. It gives maximum comfort, flexibility and lightness to operators with easy wear and take-off feature. It can be produced with belt, thick banded and with Velcro upon customer request.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front : 0,35 mm Pb or 0,50 mm Pb
Back: 0,25 mm Pb

Size	Front (Pb)	Back (Pb)	Length	Velcro	Belt	Snap
SMALL Shoulder Width 40 cm	0,35 mm	0,25 mm	90 cm	228	253	283
			100 cm	229	254	200
			110 cm	230	255	201
			120 cm	612	256	202
			130 cm	613	257	203
Hip Size 90-110 cm	0,50 mm	0,25 mm	90 cm	232	258	204
			100 cm	233	259	205
			110 cm	234	260	206
			120 cm	614	261	207
			130 cm	615	262	208
MEDIUM Shoulder Width 48 cm	0,35 mm	0,25 mm	90 cm	235	263	209
			100 cm	236	264	210
			110 cm	237	265	211
			120 cm	238	266	212
			130 cm	239	267	213
Hip Size 110-125 cm	0,50 mm	0,25 mm	90 cm	240	268	214
			100 cm	241	269	215
			110 cm	242	270	216
			120 cm	243	271	217
			130 cm	244	272	218
LARGE Shoulder Width 53 cm	0,35 mm	0,25 mm	100 cm	245	274	220
			110 cm	246	275	221
			120 cm	247	276	222
			130 cm	248	277	223
Hip Size 125-140 cm	0,50 mm	0,25 mm	100 cm	249	279	225
			110 cm	250	280	226
			120 cm	251	281	227
			130 cm	252	282	284



Double Sided Apron with Belt



Back Side



Double Sided Apron with Snap

Double-Sided Apron Wrap Model

This wrap model apron provides perfect protection for front side of the body because it covers front completely. For the two sided x-ray expose , overall protection level is kepted as 0,25 mm Pb at single front part , so it gives 0,50 mm Pb protection for long term use by a lighter weight apron. It gives maximum protection and preferred by operator of Cardiology department and fields where there is too much x-ray. It has two models with belt and without belt giving maximum protection. It can be weared like a jacket and its cruvaze style overlaps to each other in order to give full protection on front side of human body and gonad region. The shoulder pads decreases the load over the shoulders.

Lead :
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front: 0,35 mm Pb or 0,50 mm Pb
Back: 0,25 mm Pb



Size	Front (Pb)	Back (Pb)	Length	Article
SMALL Shoulder Width 40 cm	0,35 mm	0,25 mm	90 cm	520
			100 cm	521
			110 cm	522
			120 cm	523
			130 cm	524
Hip Size 90-110 cm	0,50 mm	0,25 mm	90 cm	525
			100 cm	526
			110 cm	527
			120 cm	528
			130 cm	529
MEDIUM Shoulder Width 48 cm	0,35 mm	0,25 mm	90 cm	530
			100 cm	531
			110 cm	532
			120 cm	533
			130 cm	534
Hip Size 110-125 cm	0,50 mm	0,25 mm	90 cm	535
			100 cm	536
			110 cm	537
			120 cm	538
			130 cm	539
LARGE Shoulder Width 48 cm	0,35 mm	0,25 mm	100 cm	541
			110 cm	542
			120 cm	543
			130 cm	544
			100 cm	546
Hip Size 125-140 cm	0,50 mm	0,25 mm	110 cm	547
			120 cm	548
			130 cm	549

Vest Skirt Aprons

This so chick skirt and vest combination model provides ease for movement capability by distributing the weight between shoulders and waist. Skirt and vest model can be produced besides of our standard body size given above according to exact body size of operators upon request.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front : 0,25 mm Pb or 0,35 mm Pb (At the overlapped area in front side, the lead value is double)
Back : 0,25 mm Pb



Size	Front (Pb)	Back (Pb)	Vest Length	Skirt Length	Article
SMALL	0,25 mm	0,25 mm	60 cm	55 cm	415
	0,35 mm				401
MEDIUM	0,25 mm	0,25 mm	60 cm	60 cm	416
	0,35 mm				402
LARGE	0,25 mm	0,25 mm	60 cm	65 cm	417
	0,35 mm				403

Vest Skirt Apron Wrap Model

This so chick skirt and vest combination model provides ease for movement capability by distributing the weight between shoulders and waist. Vest Skirt Apron Wrap Model provides perfect protection by fully covering front of the body with its overlapping panels (0,175 mm / 0,25 mm Pb). For instance, to provide 0,50 mm Pb protection for front of the body, two 0,25 mm Pb panels are arranged to be overlapped. Besides the light weight in long term usage, wrap models also provides highest level of protection. Vest Skirt Apron Wrap Model can be produced besides of our standard body size given above according to exact body size of operators upon request.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front: 0,35 mm Pb or 0,50mm Pb (At the overlapped area in front side, the lead value is double)
Back: 0,25 mm Pb



Size	Front (Pb)	Back (Pb)	Vest Length	Skirt Length	Article
SMALL	0,35 mm	0,25 mm	60 cm	55 cm	430
	0,50 mm				420
MEDIUM	0,35 mm	0,25 mm	60 cm	60 cm	431
	0,50 mm				421
LARGE	0,35 mm	0,25 mm	60 cm	65 cm	432
	0,50 mm				422



Surgical Apron

It can be worn under the surgical gown to provide protection to operators in case of continuous shooting. Doctors do not want to take off it by themselves because they should not risk the hand sterilization. That’s why an assistant can take off the velcro band, so the protection apron drop down. No need to use this apron if the shooting is finished.

Lead
LightWeight Lead
LeadFree (optional)

Lead Equivalent
Front : 0,35 mm Pb or 0,50 mm Pb
Back : 0,25 mm Pb



Size	Front (Pb)	Article
50 x 80 cm	0,25	405
60 x 90 cm		406
60 x 100 cm		407
60 x 110 cm		408
60 x 120 cm		409
50 x 80 cm	0,35	410
60 x 90 cm		411
60 x 100 cm		412
60 x 110 cm		413
60 x 120 cm		414

Dental Aprons

Dentists uses medical radiological examination technics as Panoramic, Periapical, Sefalometric, Sinus graphics very often for diagnostic. That’s why it is necessary to use protective aprons and thyroid collars during the treatment. Specially for children and pregnant it is not allowed to make shooting without protective apron.

Lead	Lead Equivalent
LightWeight	Lead Front: 0,35 mm Pb or 0,50 mm Pb
LeadFree (optional)	Back: 0,25 mm Pb

Size	Front (Pb)	Back (Pb)	Length Width	Article
SMALL	0,35 mm	0,25 mm	60x60 cm	341
	0,50 mm			320
MEDIUM	0,35 mm	0,25 mm	70x60 cm	342
	0,50 mm			321
LARGE	0,35 mm	0,25 mm	75x75 cm	343
	0,50 mm			322



Patient Protection Apron

This model is produced especially for patient under dental treatment. This model eases the usage and has thyroid protector which provides giving maximum protection to user.

Lead
LightWeight Lead
LeadFree (optional)
Lead Equivalent
Front: 0,35 mm Pb or 0,50mm Pb

Size	Pb	Dimensions	Article
STANDARD	0,35 mm	60 x 100 cm	323
	0,50 mm		340

Aprons For Children

Children aprons are produced mostly as front and back protected. They are produced with belt to fit it to the body well and gives maximum safety and ease for usage.

Coat Apron For Children

Lead	Lead Equivalent
LightWeight Lead	Front: 0,50 mm Pb
LeadFree (optional)	Back: 0,25 mm Pb

Size	Front (Pb)	Back (Pb)	Article
3-5 Years	0,50 mm	0,25 mm	501
6-8 Years			502
9-12 Years			503
Set			504



Double- Sided Apron For Children

The models are ease to wear and take off. They are tightened by Velcro bands. This model gives maximum protection and safety for children.

Lead
LightWeight Lead
LeadFree

Lead Equivalent
Front: 0,50 mm Pb
Back: 0,25 mm Pb

Size	Front (Pb)	Back (Pb)	Article
3-5 Years	0,50 mm	0,25 mm	505
6-8 Years			506
9-12 Years			507
Set			508

Thyroid Collars

It is produced in order to protect the thyroid region which is one of the most effected part in human body from x-ray. It has 5 models: Standard, Hat Model, Large Hat Model, Panoramic and Children.

It is recommended operators to have their own private thyroid collar as a matter of hygiene (sweating).

The standard model can be mounted to double-sided aprons by snap fastener. It should be sewed to only Front side closed aprons

Lead
LightWeight Lead
LeadFree(optional)

Lead Equivalent
0,50 mm Pb

Model	Pb	Kod
Panoramic	0,50 mm	316
Large Hat Style		317
Standard		318
Hat Style		319
For Children		328
Hat Style Children		319/1



Hat Style Children



For Children



Standard



Hat Style



Large Hat Style

Ovary Shields and Gonad Shields

Ovary is the most sensitive regions of our bodies – where our genitals are located – to X-RAY.

AKTIF X-RAY ovary shields provides ease for use, comfort and cleanliness and starts from 1.00 mm Pb lead level to provide the maximum protection.
It is produced as 3 different models for 0-9 years , 9-16 years and over 16 years users.

Lead
LightWeight Lead
LeadFree(optional)

Lead Equivalent
1,00 mm Pb

Size	Pb	Article
Small	1,00 mm	312
Medium		313
Large		314
Set		315



Gonad Shields For Males

It must be used to protect gonad region –where our genitals are located-to X-Ray
It is produced as 3 different models for 0-9 years, 9-16 years and over 16 years users.

Lead
LightWeight Lead
LeadFree(optional)

Lead Equivalent
1,00 Pb

Size	Pb	Article
Small	1,00 mm	324
Medium		325
Large		326
Set		327

Leg Protectors

Leg protector is produced according to customer request and it has velcro fastener which enables usage for every size.

Size	Pb	Article
Standard	0,50 mm	329



Lead:
LightWeight Lead
LeadFree (optional)

Lead Equivalent
0,50 mm Pb



Exclusive Models

We offer exclusive production options with high quality materials and perfect workmanship for our customers.

Arm and Wing Protectors

We can provide stitched or snap fastened arm / wing protectors for aprons on demand. It can be produced in six different color options and desired lead equivalent.



Wing Protectors



Arm Protector

Back Relief Belts

Back Relief Belts are needed due to the heavy weight of protective aprons, disfunctioning of belts in time. Contrary to similar belts' loss of elasticity in time, this design provides long term usage. These belts offer safe hold and ease to wear and take off with its nonslip, adjustable buckle or touch and close fastener. It can be produced in 4 different sizes (S,M,L,XL) and 6 different colors on demand.



Breast Shields

These shields are used in spine shoots. Its length can be adjusted with its touch and close fastener. For full spine shoots, it does not contain lead on neck. So it is ideal for scoliosis treatments.



Protective Caps

Perfectly fitted to head caps can be produced in a variety of lead equivalent values. They provide ease for usage with the touch and close fasteners.



Beret Model

Bonnet Model

Samurai Model

Half Aprons

Half aprons can be used for gonad/ovary protector or many other purposes. It is easy-to-use and can be tightened to waist by means of velcro belt.

Lead

LightWeight Lead
LeadFree(optional)

Lead Equivalent

0,50 mm Pb

Size	Pb	Article
20x25 cm	0,50 mm	301
30x30 cm		302
37x40 cm		303
40x50 cm		304
Set		305



Protective Covers

Any of the protective covers below can be used for all radiological environments. The important point is that you should select the proper size for your needs.

Lead

LightWeight Lead
LeadFree(optional)

Lead Equivalent

0,35 mm Pb or 0,50 mm Pb

Size	Pb	Article
60x60 cm	0,35 mm	306
90x60 cm		307
120x60 cm		308
60x60 cm	0,50 mm	309
90x60 cm		310
120x60 cm		311

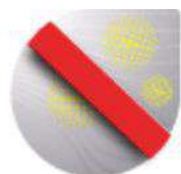


NEW

ANTIBACTERIAL SILVER LINE RADIATION PROTECTORS

PURE SILVER AND PURE PERFORMANCE

Rego X-Ray combines x-ray protection with additional protection against bacteria, odour and offers an anti-static performance as well as a cooling effect.



ANTIMICROBIAL

Protection against growth of bacteria and fungus



ANTI-ODOR

Eliminates odor in a natural way



ANTI-STATIC

Offers protection against electrostatic charge



THERMOREGULATION

Keeps you cooler during a long time treatment



DURABLE

Permanent effect during the whole life of X-ray protection cloth



PURE SILVER AND PURE PERFORMANCE

Our silver line fabrics used in X-Ray protective aprons offers much more advantages when compared with regular ones.

Rego X-Ray silver line fabrics are produced with silver threads as its name suggests.

These silver threads have antimicrobial affect so it provides protection against growth of bacteria and fungus that cause odor. At the same time these threads have anti-static and thermoregulation features.

Fibre surface: no nanotechnology or complex chemical formula, just natural silver



Available in 4 colors: light-blue, navy-blue, emerald green and bordeaux.



SGS



SGS

Racks

It is important to store aprons in proper condition in order to long last their use life. At the same time, easy reach, user friendliness, small size and easy mounting are essential points of storage conditions.

Wall Mounted Apron Rack : (2 arms -3 arms -5 arms):
This user friendly and ergonomic hanger help to long last your apron’s life . Special hooks can be mounted to this model for skirts.



Mobile Apron Rack Stainless Stell (5-10) This mobile racks have metal foots and strong wheels which makes it to move easily. 5-10 aprons can be hanged.

Wall Mounted Rack For Aprons



Wall Mounted Rack For Gloves

This special hanger has very important role for keeping lead gloves lifelong.

Natural Wooden Hanger: Strong wooden body, stainless steel hook part and proper design long lasts your apron’s life. Capacity is only one apron. Color is teak.



Steel Rack



Mobile Apron Rack: With this rack you can store up to 10 aprons by using natural wooden or steel hangers. Please indicate the type and quantity of the hangers with your orders.

Model	Article
Wall Mounted Rack For Gloves	400008
Wall Mounted Rack For Two Aprons	400025
Wall Mounted Rack For Three Aprons	400105
Wall Mounted Rack For Five Aprons	400104
Mobile Rack For Five Aprons Stainless Steel	400011
Mobile Rack For Ten Aprons Stainless Steel	400013
Natural Wooden Hanger	400015
Mobile Apron Rack	400111
Lux Mobile Rack with Shelf	400112

Lead Eyewear and Protective Masks

Lead Eyewear

Our lead eyewear is well-selected and gives the highest protection and comfort of use to operators. Panorama type eyewear is advised to be used in areas where there is radiation expose risk from sides of the head.
PS: According to prescription of user, optically corrected lenses can be produced for panorama model.



Panorama



Ultralite 9935



Ultralite 99



Ultralite 9941



Fitover



Alumilities 99AL

Model	Pb	Article
Panorama	0,75 mm	700
Ultralite 99	0,75 mm	701
Fitover	0,75 mm	702
Ultralite 9935	0,75 mm	704
Ultralite 9941	0,75 mm	705
Alumilities 99AL	0,75 mm	706



Protective Masks

Panoramic Half Protection Mask

A mask of leaded acrylic protection – covering over to almost complete surface of the face-can be applied.
It is ideal for minimum bad –effect of radiation.
It can be cleaned very easily.
It must be kept away from high pressure and temperature.



Panoramic Half Protection Mask

Panoramic Full-Face Protection Mask

Leaded acrylic mask protects the complete face from forehead to chin. It has 20cm length.
Adjustable headband gives use of comfort. It must be kept away from high pressure and temperature.

Model	Pb	Article
Panoramic Half Protection Mask	0,10 mm	707
Panoramic Full-Face Protection Mask	0,10 mm	708



Panoramic Full-Face Protection Mask

Lead Surgical Gloves

These gloves are made of natural dry rubber mixed with lead oxide. The mix of these two raw materials grants high elasticity and softness combined with the best x-ray protective curve without negative peaks typical of other protective materials. Each single gloves is controlled and tested by specialized operators that verify the full conformity to the Standards requisites and to the strictly requirements defined by our Quality Management System.

Models: XP-1* Light Type XP-2** Medium Type XP-3*** Heavy Type

Where To Use :

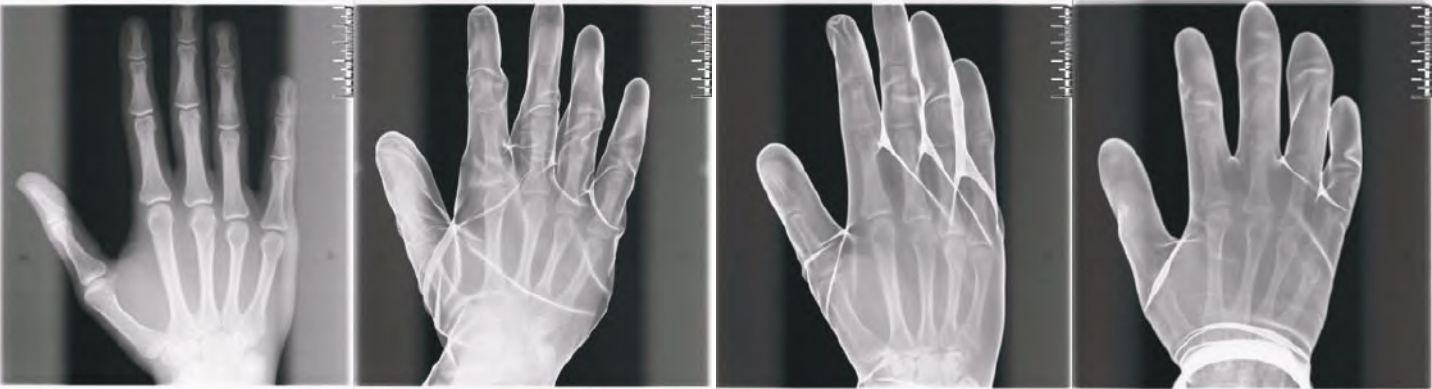
XP-1* Light Type : Gives, maximum touch sense, it is self-lubricated (ease wearing), used more at angiography urology, hematology , gastroenterology, light-simple surgical operations.

XP-2 Medium Type :** Medium thickness, self-lubricated (ease wearing), used more at urology, oncology centers, dentistry, surgery and cardiology.

XP-3* Heavy Type :** It has thicker materials and proper for traumatology and nuclear field.

Size	XP-1* Light	XP-2** Medium	XP-3*** Heavy
6 ½	750	756	762
7	751	757	763
7 ½	752	758	764
8	753	759	765
8 ½	754	760	766
9	755	761	767

Absorbtion and Screening Percentage	60 Kv	80 Kv	100 Kv
XP-1* Light	36%	31%	27%
XP-2** Medium	61%	54%	47%
XP-3*** Heavy	72%	65%	59%



Without Gloves

1 star

2 star

3 star

Lead Gloves

Aktif X-Ray lead gloves are flexible, homogenous and gives maximum safety to operator with 0,50mm Pb lead value.

Model	Pb	Article
Leather Gloves	0,50 mm	772



Protective Curtains

As Aktif X-Ray we produce radiation protective lead curtains which provides ease for apply and usage.

Lead
LightWeight Lead / LeadFree(optional)

Height Adjustable Mobile Protective Shield

This 60x60 cm sized, 0,50 mm Pb panel can be adjusted as 95x160 cm height. With 60 cm diameter aluminum caster system, it provides flexibility and can be immobilized with the 2 brake casters easily. We can produce it in any size and protective value on demand.



Curtains for Tables (Saddle Type)

These curtains can be produced as applicable for all types of tables and with the overlapping panel, it provides ease for usage while opening and closing the curtain. It is suitable for use in surgeries with C arm X-ray units and can be produced in any demanded size.

Lower Body Shields For Operation Tables

It can be mounted to operation table's accessories rail and protecting operator against secondary radiation coming through under secondary table. Table mounted model is designed to protect doctor and other stuff against to radiation during operation. Protective lead material's size is 116 cm x 76 cm , lead equivalent is 0,50mm Pb. Metal part is not magnetic. It can be mounted to both sides of operation table. It can move to front-back direction with ease on table accessory rail giving maximum comfort and safety.



Technical Features

Lead Equivalent: 0,50 mm Pb flexible curtain
Dimensions: Length:116cm xHeight:76cm
Color: Grey
Metal Part: Aluminum

Article	Pb
901	0,25 mm
725	0,35 mm
713	0,50 mm



Leaded Doors and Protective Barriers

Our company produces protective lead doors and protective barriers in any demanded size and provides the mounting service. Our protective barriers produced in high quality and with its featured caster system it provides high mobility compared to its equivalent products. And as our doors are rabbeted, they provide maximum protection against x-ray compared to its equivalent products. Standard color of our doors and doorframes is white/beige. We can also produce sliding doors on demand. Doors and protective barriers can be produced as double leaf and triple leaf. Please demand proposal by notifying the sizes of protective barriers and sizes you need.

Standard Protective Barrier

Dimensions of standard lead protective barrier is 100cm x 200cm. Strong caster system and eye height level lead glass give relax movement capability and wide view perspective to operator.

Standard Protective Barrier With Large Glass

Although the technical characteristics and sizes same as the standard protective barrier with a larger glass offers the user a wider viewing angle.

Model	Size	Pb	Glass Size	Article
Standard Protective Barrier	100x200 cm	2,0 mm	20 x 20 cm	720
Standard Protective Barrier With Large Glass	100x200 cm	2,0 mm	50 x 80 cm	721

Lead Doors

Aktif X-Ray produces custom made leaded doors according to customer needs and gives installation service. Single, double and sliding doorset options are available. Leaded jambs grant a continuous shielding together with wall panels. All doorsets are equipped with high quality handles, heavy duty hinges/sliding system and perfect workmanship. Please send technical drawing with dimensions and protection level when you ask quotation.

Model	Size	Pb	Article
Standard Lead Door	100x200 cm	2,0 mm	716



Standard Paravane



Standard Paravane with Large Glass



LEAD GLASS

Our lead glasses provide high quality transparency and protection. With high amounts of lead and barium substances it provides optimum protection between 100-300 Kv. We produce our lead glasses as 2600 mm x 1300 mm sized polished plates. At the same time, we can cut it in smaller sizes on demand. They are applicable for lamination so, they can be laminated with PV3 (polyvinyl butyral) as double layered. Our lead glasses are audited tightly and they have the certificate of conformity ISO 14001 and also quality standards.

- Benefits Of Med - X

- Protection to 100-300 Kv devices radiation
- Optimum Protection with high lead and barium
- Transparent
- Convenient For Lamination
- Big Sizes
- Up to 2600 mm x 1300 mm standard products .

- Area Of Usage

- Radiography and CT rooms
- Medical Diagnostic Screen
- Protective Window in Laboratories
- Lens of Protective Glasses
- Airport Safety Screens.



Lead Glass



Thickness	Minimum Lead Equivalence (mm) for Stated X-Ray Tube Voltage					
	100kV	110kV	150kV	200kV	250kV	300kV
mm						
5,0-5,5 mm	1,7	1,6	1,5	1,3	1,3	1,3
7,0-8,5 mm	2,3	2,3	2,1	1,8	1,8	1,8
8,5-10,0 mm	2,8	2,8	2,5	2,2	2,2	2,2
10,0-12,0 mm	3,3	3,2	2,9	2,5	2,5	2,5
11,0-13,0 mm	3,7	3,5	3,3	2,8	2,8	2,9
14,0-16,0 mm	N/A	4,7	4,1	3,5	3,6	3,7
16,0-18,0 mm	N/A	N/A	4,6	4	4,1	4,3
	*N/A : Not measured value					

Protective Shields and Ceiling Mounted Systems

Overhead Suspended Shield Model 354

This ergonomically designed shield can be moved partially over a patient and adjusted to provide maximum protection to the practitioner's eyes and upper body. A central joint enables the lead acrylic window to turn and tilt until the optimum position is achieved.

- 0,50 mm lead acrylic with ball & socket joint can be positioned at any angle
- Shield can be placed over the patient for maximum protection
- The decision to locate the cut-out on the left or right can be made during installation, according to its intended use
- A version without the cut-out can be rotated horizontally if a wider shield is required
- Optional flexible 0,50 mm Pb curtains can be factory fitted to either version
- Other sizes available

All of the above shields can be mounted on a ceiling column or on a ceiling track with or without a Surgical Lamp. Or, alternatively, on its own wall mounted.

Overhead Suspended Shield Model 351

The lead acrylic window of this shield is placed partially over the patient for effective protection against scatter radiation to the eyes and upper body. The wide format provides a safe zone for the practitioner and for personnel assisting close by.

The window can be turned to the most convenient angle or removed immediately for emergency access to the patient.

- 60x80 cm 0,50 mm lead acrylic window ensures protection against scatter radiation to the eyes & upper body
- Wide configuration provides a safe zone for user and personnel close by
- Contoured shield can be places over the patient for maximum protection
- A version without the cut-out is available
- Optional 0,50 mm Pb flexible curtain can be fitted to either version for additional protection

All of the above shields can be mounted on a ceiling column or on a ceiling track with or without a Surgical Lamp. Or, alternatively, on its own wall mounted.

Overhead Suspended Shield Model 350

These compact shields ensure maximum dose reduction to the eyes by the use of high-quality lead glass, with a lead equivalency of 2,00 mm Pb.

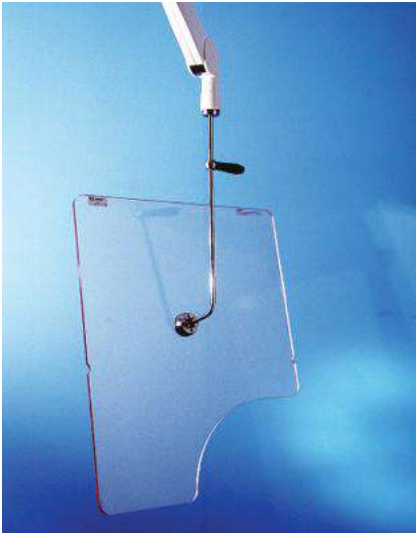
The windows can turn horizontally & vertically until the ideal angle is obtained for protection. This also helps eliminate reflections from lights or other equipment and ensures a clear view of the patient.

- Easy to move overhead shield
- Maximum protection for eyes & thyroid
- Available as 30x40 cm or 40x50 cm
- 2,00 mm Pb lead window with 0,50 mm Pb curtain @150 kV
- Different curtain lengths available

Ceiling Track Mounted Shields & Surgical Lamps

A ceiling track provides maximum positioning flexibility, enabling the shield and/or lamp to be moved easily into the working area. When not in use they can be parked up to 5.5 metres away.

- Ceiling tracks are 2,5 metres long, compact and exceptionally easy to install & use. They can be positioned at any angle across the ceiling.
- Ceiling tracks are useful when static mounts prevent the movement of other equipment.
- The smooth running track carriage will accommodate one or two shields or surgical lamps or a combination of both.
- An additional carriage can be fitted if independent movement of a lamp and shields is required.

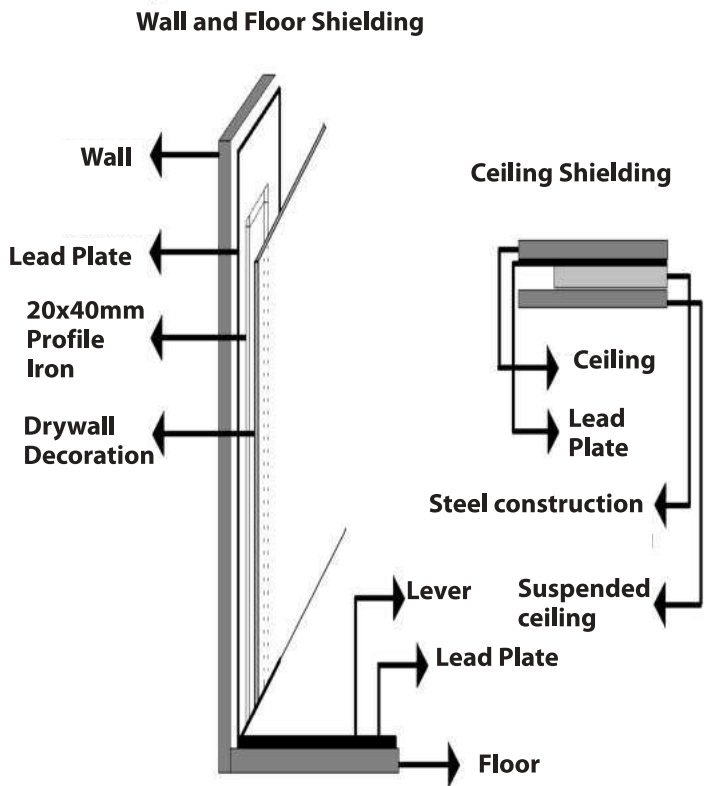
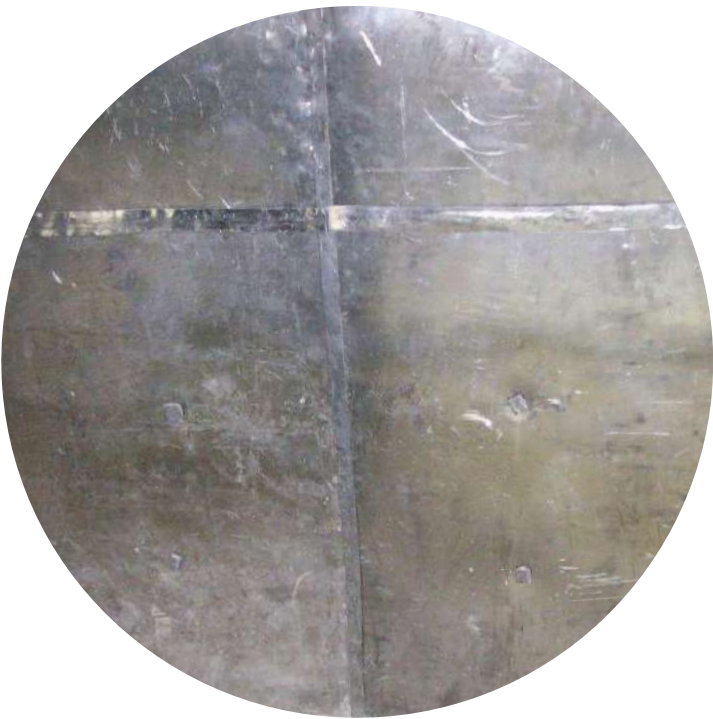


Lead Shielding

Radiation safety rules and regulation requires wall of the rooms (Radiography ,tomography , computer aided tomography , radiotherapy , X-Ray) to be leaded isolation. Our company produces also windows and doors of these rooms beside their walls. Please send your inquiry with technical drawing of your room.

What we do;

By our team having 25 years experience;
Shielding for radiography and tomography rooms according to TAEK and World standards.
Design and shielding for dental panoramic radiography rooms.
Fully customized leaded doors in different models and sizes
Fully customized protective barrier (fixed , mobile and any size).



WINDOWS – FLOORS – CEILINGS SHIELDINGS

X-Ray Windows Shielding:

X-Ray windows shielding system is made by sliding shutters, made of strong wood box panels with interposed lead , calibrated and brushed .

X-Ray Floor Shielding With Lead Sheets:

For shielding are used lead sheets protected by tarred felt paper .The sheets overflow near the junctions and wall edges to avoid escape radiations outgoing.

X-Ray Ceiling Shielding:

Ceiling shielding is made using X-Ray panels with the same features of wall-panels . Panels fixing is made of wood structure (minimum section cm 6x6) fixed on ceiling by supports.

Rontgen Accessories

Positioning Aids

We have positioning aids set which are used during radiological examination and theraphies. The set includes 9 parts; 2 circular, 1 cylindrical, 1 rectangle, 4 triangle, 1 pyrisma.

Definition	Article
Standard Kit with Bag (uncoated)	614013
Standard Kit with Bag	614113
CT shots model	614118
New Polyetilen Kit with Bag	614213
Multipurpose Pad	666666

Patient Table Pad

It can be produced in customized size upon request.
Width : 60 cm
Height : 200 cm



Patient Table Pad

Computerized Tomography Grayshield Eye and Thyroid Protectors

Grayshield eve and thyroid protectors (1,4 mm thickness) provides 0,125 mm Pb lead equivalent protection.

Grayshield Thyroid Protectors

Grayshield Thyroid Protectors are designed to fit exactly on adam’s apple and produced to protect thyroids, which are sensitive to x-rays, during tomography and other radiographies.



Grayshield Eye Protectors

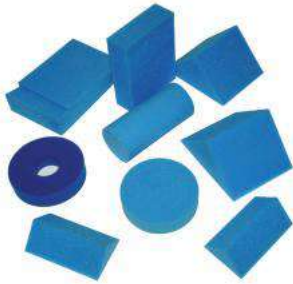
Grayshield Eye Protectors are designed to cover front and side of the eyes and they reduce the x-ray exposure significantly during tomography and radiographies. It is applicable for any face shape by its hypoallergenic adhesive tape.



As Grayshield Tyhroid and Eye Protectors are for single use only, they are prevent contagious diseases. They can be considered as domestic waste because they are composed of barium sulfates.



Positioning Aids



Lead Letters and Warning Signs

We provide a variety of lead letters and numbers. Warning signs are mandatory to use in radiation exposed areas.



Lead Letter and Markers

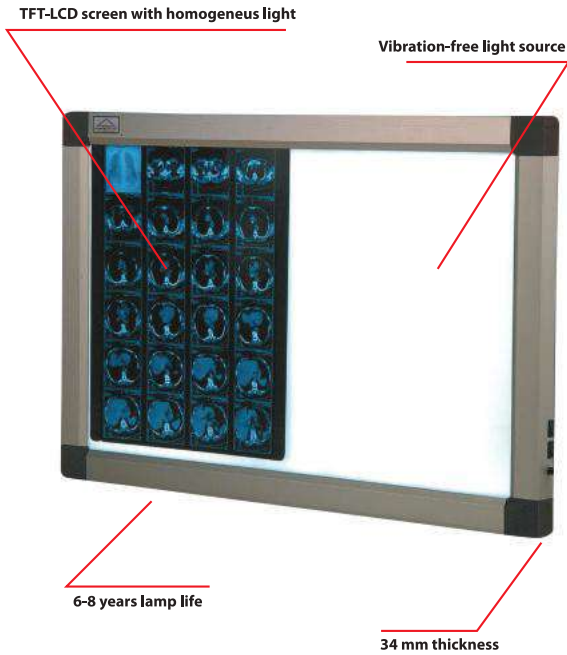


İÇERİ GİRMEYİNİZ
DO NOT ENTER

Negatoscopes

Technical Specifications

- 34 mm thickness
- TFT-LCD screen with homogeneous light
- Special light characteristic for rongten, mammography, MR and CT films
- Using desired panels
- Special light colors and intensity
- 6-8 years lamp life
- Minimum eye fatigue due to vibration-free light source
- Energy saver lamps (CCFL/LED)
- Use option DC12V or AC 220 V
- Stylish design
- Optional specialized production
- Can be mounted horizontally of vertically
- Can be used on table with back stand
- 2 year warranty

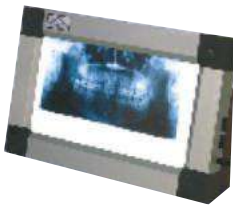


Vertical Negatoscope for Spinal Cord shootings

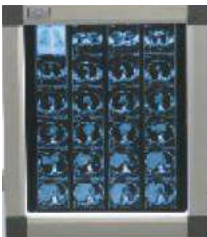
IRIS Light Type	IRIS Circle	Bright Power	Article
Standard	5-100 mm	70.000 lux	643170
Model - An	5-100 mm	70.000 lux	643171

NOTE: Please ask information about mammography negatoscope.

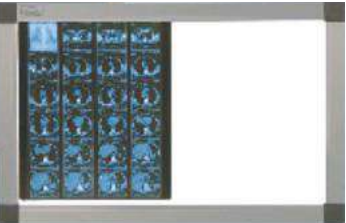
STANDARD MODELS



Panoramic Negatoscope
(25x40 cm) Article: 643006



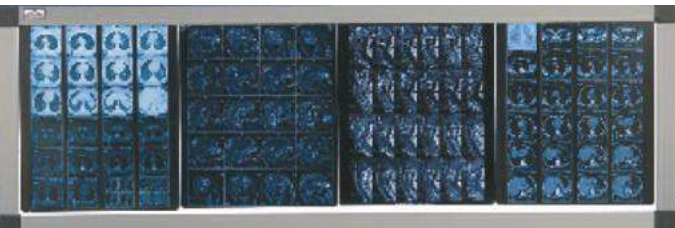
Single Negatoscope
(44,7x51,4 cm) Article: 643100



Double Negatoscope
(80,4x51,4 cm) Article: 643101



Triple Negatoscope
(116,4x51,4 cm) Article: 643102



Quadruple Negatoscope
(151,6x51,4 cm) Article: 643103

Colon Set

Instruction For Use

1. Join the application tip and enema bag,
2. Close all clamps,
3. Pour prepared solution to enema bag,
4. Close and tighten the lid of enema bag,
5. Before apply to patient, open clamp on application hose in order to let solution to reach to tip,
6. Lubricate the tip using Vaseline,
7. Locate the tip slightly inside rectum,
8. Squeeze the pump once and inflate the silicon balloon by opening clamp.

A) SLIMLINE – 3 WAYS DOUBLE CONTRAST COLON TIP

1. 18 mm diameter flexible tip and air canal with clamp for dispensing the radioopac material to body,
2. Silicon balloon and clipped air entry part which keeps tip stuck to body during application,
3. Air entry with clamp for air radiographic shots.

B) SLIMLINE – 1 WAYS DOUBLE CONTRAST COLON TIP

1. 18 mm diameter flexible tip and air canal with clamp for dispensing the radioopaque material to body,
2. Silicon balloon and clipped air entry part which keeps tip stuck to body during application,
3. Air entry with clamp for air radiographic shots.

C) ENEMA BAG

1. Designed specially in order to increase speed of solution flow,
2. It has scale, it can contain 3000 ml solution in fully capacity,
3. Screwed and airy lid,
4. Clamper Extension Hose.

CONSIDERE POINTS

1. Do not use vinyl or latex containing gloves,
2. Take care of not to make pressure to vagus nerve,
3. Do not make fast or deeper the application,
4. Squeeze the pump only once in order to inflate approx. 100cc air, do not give more, it can explode and harm patient.

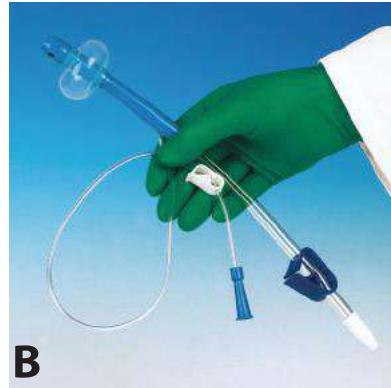
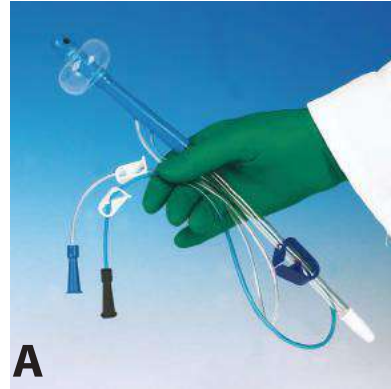
THIS PRODUCT IS APPLICABLE FOR DOUBLE OR SINGLE CONTRAST USAGE. IT IS FOR SINGLE USE. PUMP IS NOT FOR SINGLE USE SO, THE SET DOES NOT CONTAIN PUMP. IT CAN BE PROVIDED ON DEMAND. THE COLON TUBE IS PRODUCED WITH ENVIRONMENT FRIENDLY PLASTIC, PLEASE DISPOSE IT PROPERLY AFTER USAGE.

DO NOT USE IN THE FOLLOWING SITUATIONS:

1. Do not use on patients have colostomy.
2. Pump;
 - a) In rectal anastomosis that don't go in deep,
 - b) In proctitis, inflammatory or neoplastic rectum diseases,
 - c) In first rectal surgery attempts.



Colon Set



Model	Code
Double Contrast Colon Tube	613001
Single Contrast Colon Tube	613002
Medium Bag	613008
Pump	613004

A FEW OF OUR REFERENCES





X-RAY DOES NOT JOKE!

**RADIATION PROTECTION
EQUIPMENTS**

AKTIF DIS TICARET
Altunizade Mah. Kusbakisi Cad.
Asuroglu Sit. D Blok No:25 D:1/2
Üsküdar / Istanbul
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Fax: +90 216 474 48 19



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www.kosgeb.gov.tr



CERTIFICATE



for the management system according to ISO 9001:2015

The proof of the conforming application with the regulation was furnished and in accordance with certification procedure it is certified for the company

AKTIF DIŞ TIC. İNŞ. TURZ. VE TIBBİ ÜRÜNLER SAN. LTD. ŞTİ.

**Kuşbakışı Cad. Aşuroğlu Sit. D Blok No: 29/1-2 34622
Üsküdar – İstanbul / Turkey**

Scope

**Design, manufacture and marketing of x-ray protective products,
shielding of x-ray rooms and installation of x-ray protective
products. Distribution of rotary instruments for dentistry.**

Certificate Registration No.: TIC 15 100 52945

Valid until: 2023-05-29

Valid from: 2020-05-30

Audit Report No.: 3330 25V5 P0

This certification was conducted in accordance with the TIC auditing and certification procedures and is subject to regular surveillance audits.

TÜV Thüringen e.V.
Certification body for
systems and personnel



Jena, 2020-05-05



Deutsche
Akkreditierungsstelle
D-ZM-16006-05-01



Original certificates
are branded with a hologram.

The current validity can be demanded at our homepage www.tuev-thueringen.de.

Zertifizierungsstelle des TÜV Thüringen e.V. • Ernst-Ruska-Ring 6 • D-07745 Jena • ☎ +49 3641 399740 • ✉ zertifizierung@tuev-thueringen.de



Benannt durch/Designated by
Zentralstelle der Länder
für Gesundheitsschutz
bei Arzneimitteln und
Medizinprodukten
www.zlg.de
ZLG-BS-244.10.08



Product Service

EC Certificate

Full Quality Assurance System

Directive 93/42/EEC on Medical Devices (MDD), Annex II excluding (4)
(Devices in Class IIa, IIb or III)

No. G1 020011 0048 Rev. 00

Manufacturer:

FUJIFILM Corporation
26-30, Nishiazabu 2-Chome
Minato-Ku, Tokyo
106-8620 JAPAN

EC-Representative:

FUJIFILM Europe GmbH
Heesenstr. 31,
40549 Düsseldorf,
GERMANY

Product Category(ies):

Computed Radiography Console, Diagnostic X-ray
Equipment, Digital Mammography System and
related equipment, Software for Diagnostic
Imaging Workstations, Ultrasound Diagnostic
Imaging Equipment, Endoscopes for medical use
and their related equipment and accessories,
Ultrasound Endoscopes and their related
equipment and accessories

The Certification Body of TÜV SÜD Product Service GmbH declares that the aforementioned manufacturer has implemented a quality assurance system for design, manufacture and final inspection of the respective devices / device categories in accordance with MDD Annex II. This quality assurance system conforms to the requirements of this Directive and is subject to periodical surveillance. For marketing of class III devices an additional Annex II (4) certificate is mandatory. See also notes overleaf.

Report No.:

JAQ235032836

Valid from:

2018-08-28

Valid until:

2022-11-21

Date,

2018-08-28

Stefan Preiß

EC Certificate

Full Quality Assurance System

Directive 93/42/EEC on Medical Devices (MDD), Annex II excluding (4)

(Devices in Class IIa, IIb or III)

No. G1 020011 0048 Rev. 00

Facility(ies):

FUJIFILM Corporation

26-30, Nishiazabu 2-Chome, Minato-Ku, Tokyo,
106-8620 JAPAN

FUJIFILM Corporation

798, Miyanodai, Kaisei-Machi, Ashigarakami-Gun,
Kanagawa, 258-8538 JAPAN

-/-

FUJIFILM

FUJI MEDICAL DRY IMAGER

DRYPIX

Lite (Model : DRYPIX 2000)

Outstanding performance, remarkable efficiency and superb quality satisfy your medical imaging needs



- A New Concept Tabletop Dry Imager
- Supports Multiple Film Size
- Expandable to Two Magazines



Fuji Medical Imager DRYPIX Lite Specifications

Basic Specifications

Standard Component:	Fuji Medical Dry Imager DRYPIX Lite (Model: DRYPIX 2000)
Recording method:	Thermal head transfers heat while in contact with thermal film
Applicable film:	Fuji Medical Dry Film DI-HT 35 x 43 (14 x 17), 26 x 36, 25 x 30 (10 x 12), 20 x 25 (8 x 10)
Film loading:	Daylight film loading
Film magazines:	Up to 2 magazines
Processing capacity:	Approx. 50 sheets/hour 35 x 43 (14 x 17), Approx. 75 sheets/hour 26 x 36, Approx. 65 sheets/hour 25 x 30 (10 x 12), Approx. 90 sheets/hour 20 x 25 (8 x 10)
Pixel size:	84.7µm (300dpi)
Recording gradation:	12 bits
Image memory:	1 GB
Density adjustment:	Automatic
Input channels:	DICOM network input x 1 channel only

Physical Characteristics

External dimensions (W x D x H):	530 x 590 x 365mm (21 x 23 x 14") with Large magazine/ 530 x 470 x 365mm (21 x 19 x 14") with Small magazine 180mm higher with optional sheet-feeder unit
Weight:	32 kg (71 lbs.) / 43 kg (95 lbs.) with optional sheet-feeder unit
Power supply:	Input voltage: AC100-240V / Phase: Single / Frequency: 50-60Hz Rated current: 5-2A

Operating Environment

Temperature:	15-30°C
Humidity:	40-70% RH (at 15°C) to 15-70% RH (at 30°C) (no dew condensation)

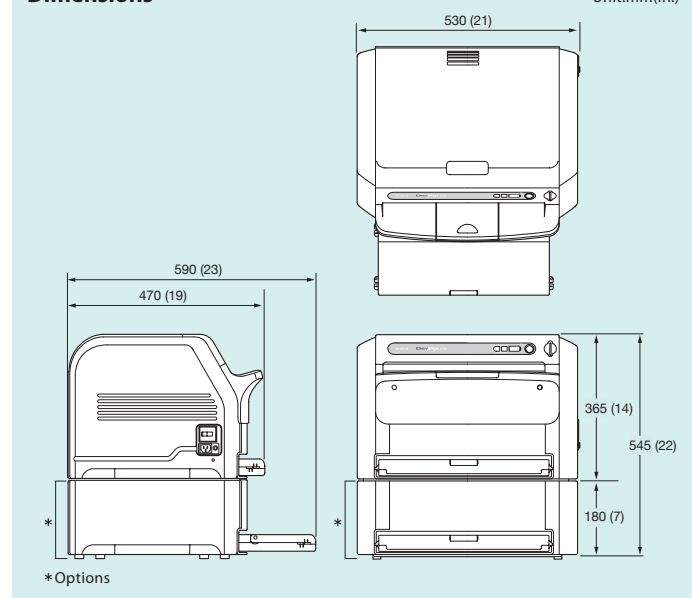
Options

- Optional sheet-feeder unit (*Supply magazine not included [Purchase separately])
- Vehicle mounting kit • Cart (*Cart does not conform to UL requirements.)
- Large magazine • Small magazine

*DRYPIX Lite doesn't come standard with supply magazine. Purchase magazine accordingly.
 *Large magazine can only accommodate 35 x 43 (14 x 17) film size.
 *Small magazine can accommodate either 26 x 36, 25 x 30 (10 x 12) or 20 x 25 (8 x 10) film size.
 To set up the film size to your desired size requires the support of our servicing personnel.
 Once the magazine is set to a film size, you cannot change it to a different one by yourself.
 *Film sizes indicated above required the respective magazines, as desired.

Dimensions

Unit:mm(in.)



Consumables

Fuji Medical Dry imaging Film DI-HT



*DI-HT only for DRYPIX Lite.

- 35 x 43 (14 x 17): 100 sheets/pack
- 26 x 36: 100 sheets/pack
- 25 x 30 (10 x 12): 100 sheets/pack
- 20 x 25 (8 x 10): 100 sheets/pack



DRYPIX Lite shown optional sheet feeder unit and 2magazines

Specifications are subject to change without notice.
 All brand names or trademarks are the property of their respective owners.
 In some countries, regulatory approval may be required to import medical devices.
 For the availability of these products, please contact your local sales representatives.



Medical Dry Imager
 WITH RESPECT TO ELECTRIC SHOCK, FIRE
 AND MECHANICAL HAZARDS ONLY
 IN ACCORDANCE WITH UL60601-1/CAN/CSA C22.2 NO.601
 EC: 80001-11 5396

FUJIFILM

FUJIFILM Corporation

<http://www.fujifilm.com/products/medical>

MANUFACTURER:
FUJIFILM Corporation
 26-30, NISHIAZABU 2-CHOME, MINATO-KU, TOKYO 106-8620, JAPAN



European Authorized Representative:
FUJIFILM Europe GmbH
 Heesenstrasse 31, 40549 Duesseldorf, Germany

Certificate GB18/962221

The management system of

AKTİF DIŞ TİCARET İNŞAAT TURİZM VE TIBBİ ÜRÜNLER SANAYİ LİMİTED ŞİRKETİ

Kuşbakışı Cad. Aşuroğlu, Sitesi 29/1-2, D-Blok
Altunizade Üsküdar, İstanbul, Turkey

has been assessed and certified as meeting the requirements of

Regulation (EU) 2016/425

Module D

For the following activities

**Manufacturing of X-Ray Protective Lead and Leadfree
products and X Ray Protective Eyewear.**

**Note: All products marked CE0120 must have a valid EU type-
examination certificate issued under Module B or a valid
EC type-examination certificate issued under Article 10
of Directive 89/686/EEC.**

This certificate is valid from 22 December 2020 until 04 July 2023
and remains valid subject to satisfactory surveillance audits.

Re certification audit due before 29 June 2023

Issue 3. Certified since 25 October 2018

Authorised by




Digitally signed by Grabazei Alexandru
Date: 2021.05.21 11:43:21 EEST
Reason: MoldSign Signature
Location: Moldova

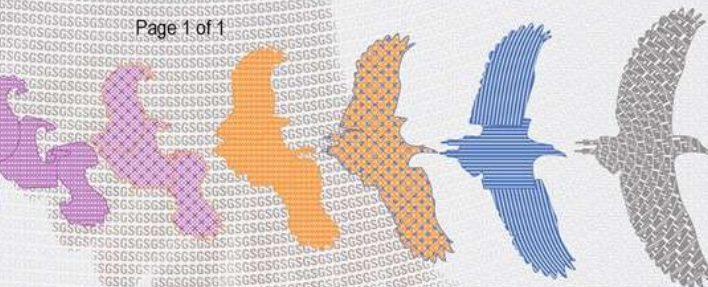


SGS United Kingdom Limited, Notified Body 0120

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HC SGS 2016/425 D 0118

Page 1 of 1



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