GENORAY

Computed Tomography X-Ray system

PAPAYA 3D & PAPAYA 3D Plus

User Manual

UM-704

2021.06.25 Document Ver. 2.2

Table of Contents

The maual for PAPAYA 3D Plus includes coverall operation directions and other information
The information contained in this manual may be subject to modification without notice, justification, and notification to the persons concerned

We recommend that you thoroughly familarize yourself with this manual in order to make the most effective use of your system.

The manufacturer, importer are responsible for the safety, reliability and performance , installation carried by qualified authorized personnel of the X-ray

☐ Manual Conventions

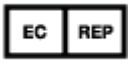
This manual uses the following conventions:
Following special message emphasize information or indicate potential risk to personnel or equipment

Emphasizes important information.

Indicates important instructions.
If not observed, malfunction or damage to the Product or other property may occur.

Indicates warnings and safety instructions
If not adhered to, there is a serious risk of injury to be patient and/or the operator

☐ Machine Markings / Symbols

Symbol	Description	Location
	AC (Current)	
	Protective earth (Ground)	Boards
	"ON" (Power)	ON/OFF Switch
	"OFF" (Power)	ON/OFF Switch
	X-Ray generator, X-Ray inspection	Label
	Warning, electricity	Generator
	Laser	Equipment
	WEEE Mark	Label
	Type-B Applied Part	Label
	Name of Manufacturer and Address	Label
	Manufactured Date	Label
	Equipment Serial Number	Label
	Refer to the instruction manual	Label
CE 2460	The CE symbol indicates that this product complies with the European Directive for Medical Devices 93/42/ EEC as amended by 2007/47/EC as a class IIb device.	Label Manual
	Authorized Representative in the European community	Label Manual

1. Introduction of product

1.1 Intended use

PAPAYA 3D Plus is a dental X-ray systems used to panoramic images, cephalometric images, and computed Tomography images (hereinafter Panoramic, Cephalo, CT) of the oral and craniofacial anatomy. It designed to represent high quality images without unnecessary radiation explosion. Both enhanced motorizing and panoramic multi exposure technology allow minimizing radiation dose as well as images of accurate expansion ratio.

☐ Multiple name

The multiple model name of PAPAYA 3D Plus is VOLUX 55.

The equipment is available with the Panoramic and CT imaging, and can be added to images taken with Cephalo optional.

☐ Intended Use

The X-ray unit system is a diagnostic imaging system which consists of multiple image acquisition modes; panoramic, cephalometric and CBCT (Cone Beam Computed Tomography). X-ray unit system is used for dental radiographic examination and diagnosis of teeth, jaw, oral structures and skull. The device is to be operated and used by dentists and other legally qualified professionals.

☐ Indication

The X-ray unit system, the Diagnostic computed tomography limited view field X-ray system, is intended to provide panoramic, cephalometric, and CBCT image of the patient during dental diagnostic procedure such as dental implant planning, orthognathic surgery planning, removal of impacted teeth, to an evaluation of cysts and neoplasias.

☐ Contraindications

There is no contraindication for patient when using x-ray unit.

☐ Features - PAPAYA 3D

- Optional features of Dental Arch
- Image quality and exposure speed can be selected
- Patient-specific optimal X- ray irradiation condition setting function
- Minimizing radiation exposure of the patient to control each section X- ray irradiation
- Various exposure modes for complete analysis of the TMJ
- CT offers various exposure modes tailored to the application

1.2 Precautions before using

Users are responsible for equipment operation and maintenance. Please be conducted regularly checked for safety and for more information, refer to Appendix 2. Maintenance

☐ Use of medical devices using X- electrical lines always presents a potential risk.

☐ Please read the details on the methods provided in the manual and the safety of such emergency actions to be taken.

☐ Please use the equipment after read the manual.

☐ Do not the different components rather than the components of the installation of the equipment supplied equipment.

☐ Do not apply power to the equipment via a power strip and extension cord.

☐ This can cause damage and malfunction of equipment.

☐ Do not use the equipment malfunction or equipment is out of order.

☐ Do not operate the equipment until forcibly and contact a HQ service center

☐ Before the recording should be asked to remove eyeglasses, hearing aids, dentures, dentures, hairpins, jewelry, and other metal objects in the patient to wear. When you take such an object as above, you may see shadow and reflection images in the video. For safety reasons, we recommend that you remove Neckwear Scarves, scarves, ties, etc.

☐ Do not use the supplied PC for other purposes.
Internet surfing can cause the image transmission and reconstruction problems when used for other purposes.

Do not push or pull the equipment. If equipment overbalances, resulting in the risk of physical injuries or property damage.

This equipment is legal qualified doctors, dentists, radiologists can only be used.
Do not arbitrarily open the cover of the equipment.

Operators must ask the patient to remain still until the equipment arm has stopped moving and the reset motion is complete.

1.3 Electrical and fire safety

Before using this product, please check below.

☐ Before connecting the power, check to see of the power supplying line is appropriate to this product. Check the power and connect the power cable of this product to its power socket

 WARNING	Place this product away from other X-ray products, power generating equipment and broadcasting stations. If the product is sharing the power with other electric devices, abnormal image might occur.
 WARNING	For reducing the risk of electrical shock, and when connecting to power, there needs protecting ground connection.
 WARNING	Do not change this equipment without the permission of the manufacturer.
 CAUTION	X-ray unit connected to the signal input, signal output or other connectors must comply with the relevant IEC standards (e.g., IEC60950 for IT equipment and IEC60601-1 series for medical electrical equipment). In addition, all such combination systems must comply with IEC60601-1 and/or IEC60601-1-1 harmonized national standards or relevant combination standards. If in doubt, contact a qualified technician.
 CAUTION	X-ray unit must be performed by a qualified service technician.

To avoid failure and the danger that might cause serious injury or electric shock to users and patients, please acknowledge the safety procedures listed below.

☐ Before cleaning the product, always turn off the power and separate the power cord, and clean the product with lightly wet cotton or sponge.

☐ Turn off the power and unpluged when you are not using the machine.

☐ Do not place food on any part of the product.
They might get into the electric circuit and get into contact with electrical matters

The user should follow the safety guideline provided below.

☐ Turn off the power and separate the power cable from the socket.

☐ Stay far away from the place where the product has been installed.

☐ Ask for help around you.

☐ Please acknowledge how to use the fire extinguisher for precaution.

This product generates the electromagnetic energy.
If the product is affected by electromagnetic interference, turn off the power and change the location of the product.
In this case, it should be connected to another socket. If you need help, please contact our service center.

1.4 Radiation Safety

Must comply with all radiation laws and regulations with the local jurisdiction.

When taking exposures, the x-ray room of the floor, wall material and radiation protection must be strengthened.

When taking exposures, operators and service personnel must protect themselves from radiation.
Protect the patient from scattered radiation by placing a protective lead apron over the patient.

☐ All patients must be provided with a shidlded apron for gonad protection.

☐ Avoid unnecessary exposure, use suitable collimation fit according to body type of child.

☐ Avoid additional exposures by unnecessary movement of a child, must be accompanied by an adult.

If the x-ray unit shows any signs of oil leakage, switch the X-ray unit off and contact your service technician for help.

When taking an X-ray exposure of a child or pregnant woman, consult a doctor.

1.5 Overheat equipment

Overheating of the high voltage generator, a warning is displayed below.

No.	Icon	Ttile	Description
1	 	X-ray exposure possible.	10℃ to 54℃ ▪ Green ▪ Yellow
2		X-ray exposure impossible	Higher than 55℃ (high voltage generator is overheated)) ▪ Red

When the high-voltage generator is overheated, please turn off the equipment.
It hasto have a cooling time of 2-3 hours.
After then turn on the power, please make sure that it is ready for exposure.

There is a possibility that when you use continuously without cooling time of the product, damage occurs in the X-ray tube, please use it to protect the Cooling Time After exposuring.

1.6 Environmental requirements

☐ Storage & Transportat
- Temperature: 20°C to 55°C (Detector: 15°C to 55°C)
- Relative Humidity: 10% to 90% RH (non-condensing)
- Air pressure: 500 to 1060hPa

☐ Operating
- Temperature: 10°C to 35°C
- Relative Humidity: 30% to 75% RH (non-condensing)
- Air pressure: 800 to 1060hPa

☐ The following table shows gereral operating guidelines of the PAPAYA 3D Plus.
Be sure that you do not subject the device to conditions that are specified below
- Exposure to ambient moisture
- Directly exposed to sunlight
- Operate or store the device in areas with high concentration of dust
- Environment with problem of ventilation
- Air contained much salt
- Environment with high concecntration of flammable gas or anesthetics

1.7 Disposal

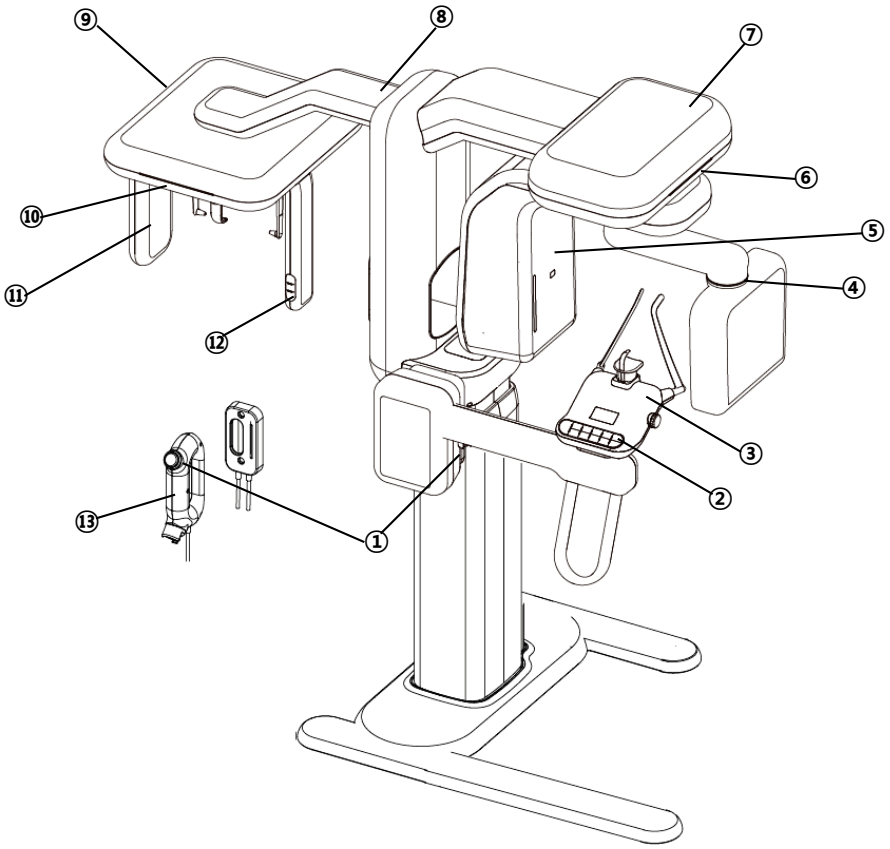
The equipment and parts whose life has ended should be disposed of as follows.

Item	Recycling	Industrial waste treatment service provider	Dangerous substances
X-ray tube		●	
Metal Frame	●		
Plastic	●		
PCB & harness		●	

2. PAPAYA 3D Unit description

2.1 Structure and appelation

The equipment is available with the Panoramic and CT imaging, and can be added to images taken with Cephalo optional. Configuration and appearance of the model, please refer to the diagram below



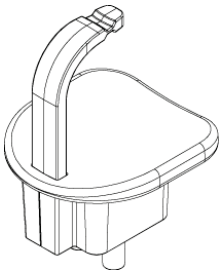
No.	Description	No.	Description
1)	Emergency stop switch	8)	Cephalo arm
2)	Equipment's control button	9)	Cephalo unit
3)	Patient supporting area	10)	State indication LED
4)	Detector (Panoramic, CT)	11)	Detector Ceph
5)	X-ray Source assembly	12)	2nd Equipment's control button
6)	State indication LED	13)	Hand switch (Exposure switch, Emergency stop switch)
7)	Driving unit		

2.2 Accessories

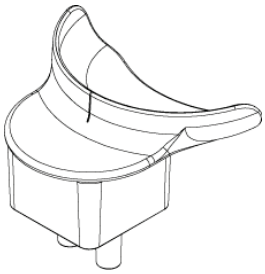
Accessory components are configured differently depending on the specifications of the purchased equipment.

2.2.1 Chinrest

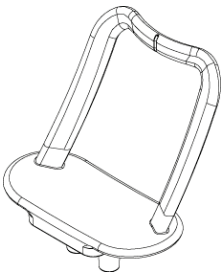
Depend on patient condition and exposure mode, select the chinrest



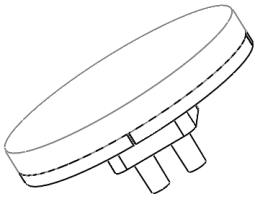
[Standard]



[Chin support
for edentulous patient]

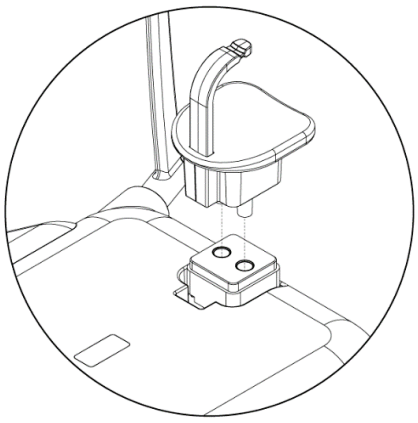


[SINUS & TMJ]



[ModelScan]

2.2.1.1 Chinrest change method

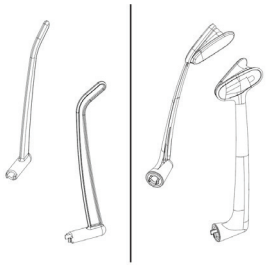


Insert the chin rest selected into the holes in the patient support table

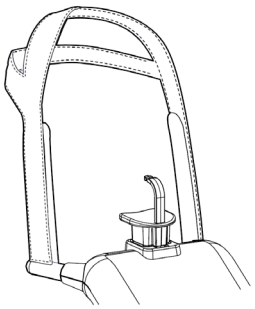
When servicing use only approved replacement parts supplied by the manufacturer. We are not responsible for any issues caused by the parts not supplied by us.

2.2.2 Etc Accessories

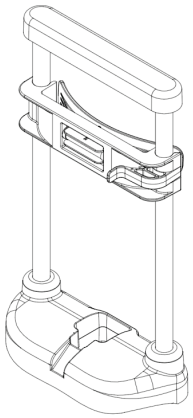
Choose the accessories you need to assist with your exposure.



[Temple support]

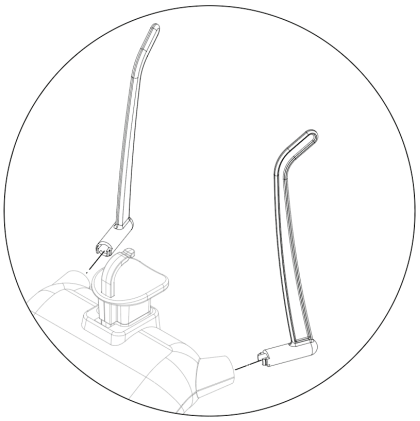


[Hair band]



[Head support]

2.2.2.1 Temple support / Hair band change method



Insert the Temple support or hair band into the holes in the patient support table.

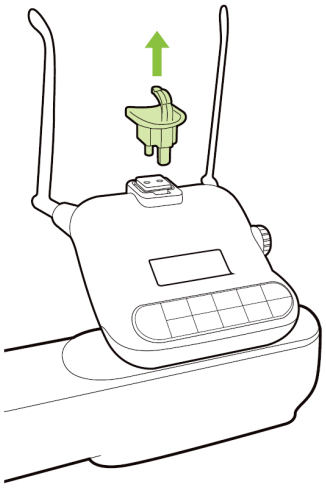
When servicing use only approved replacement parts supplied by the manufacturer. We are not responsible for any issues caused by the parts not supplied by us.

2.2.2.2 Head support change method

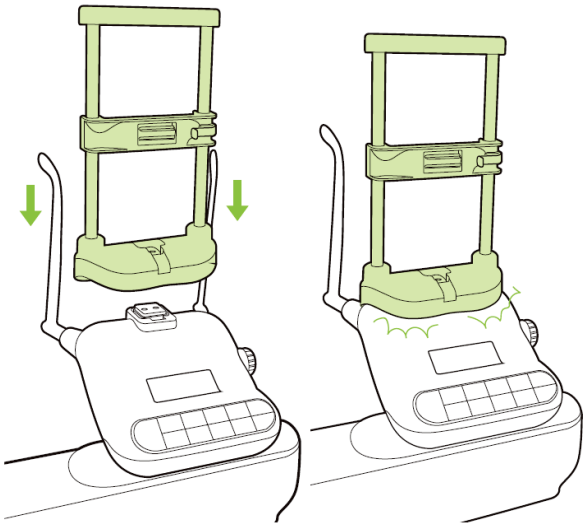
☐ Install method

Install the head support according to the following procedure.

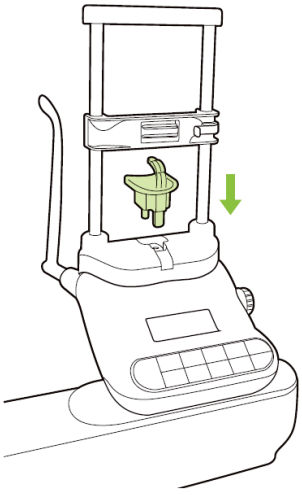
1. Remove the bite block.



2. Install the head support.



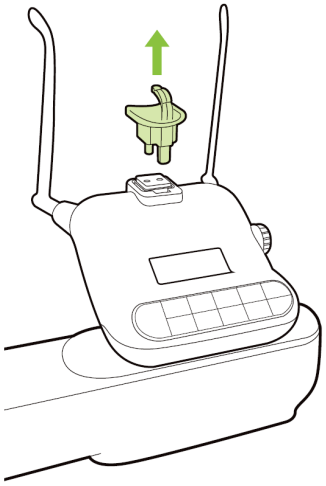
3. Install the bite block again.



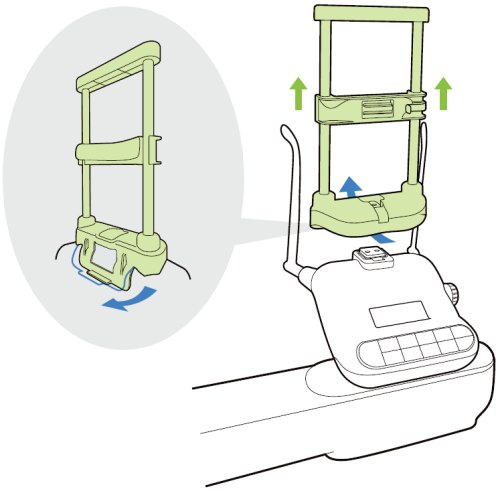
☐ Remove method

Remove the head support according to the following procedure.

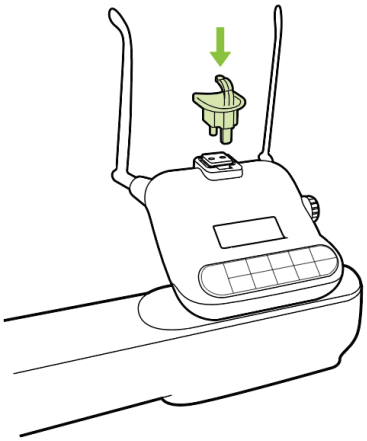
1. Remove the bite block.



2. Remove the head support.

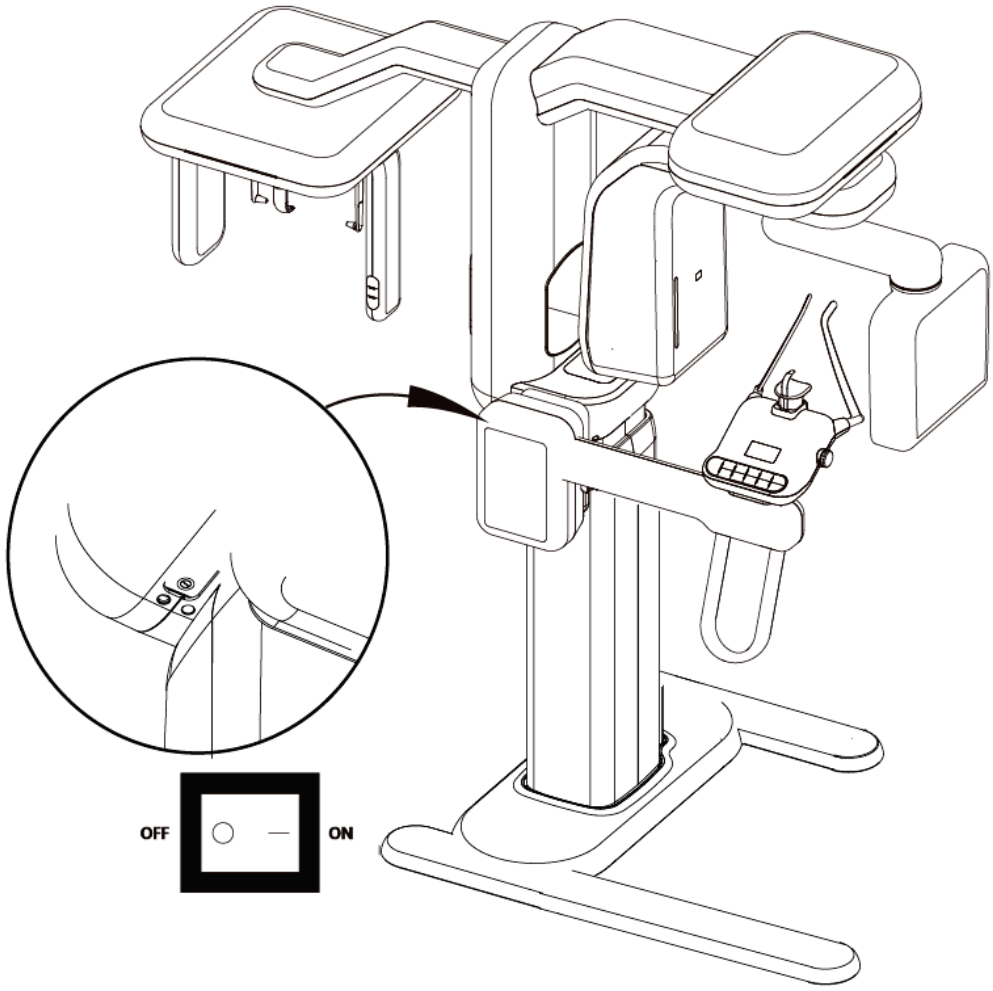


3. Install the bite block again.



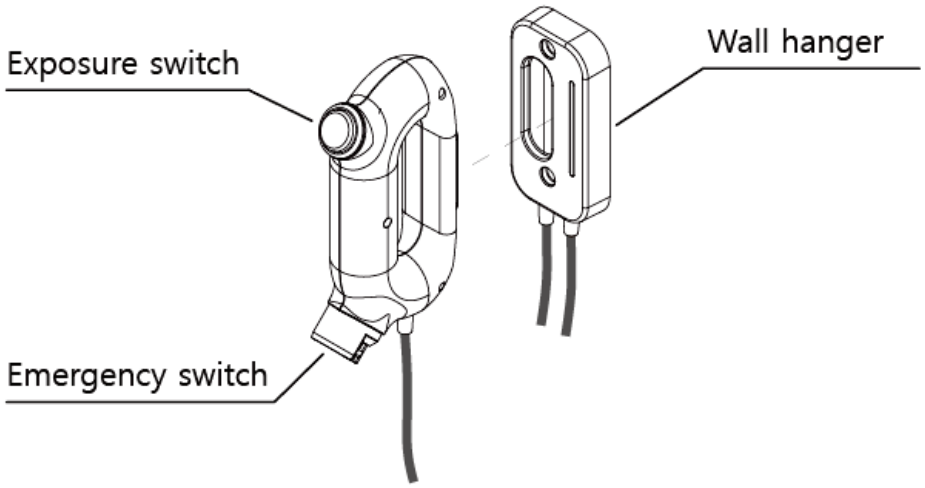
2.3 ON / OFF switch

ON/OFF switch is located on the underside of the stationary column top.
Switch on the unit, status LED is blinking to start the ready for use.
When the unit is reay, status LED turns green.



The unit needs few seconds to warm up before use.

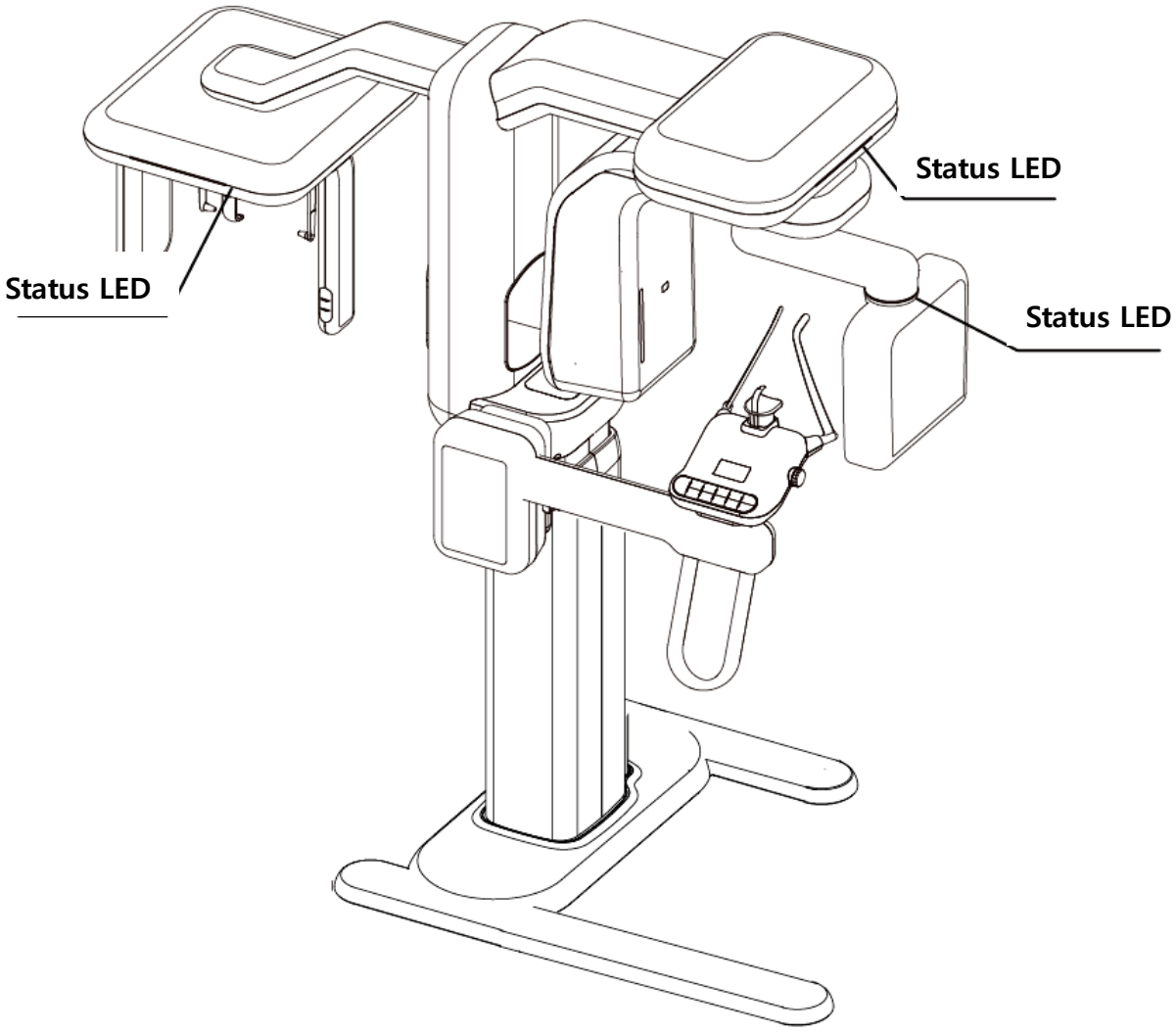
2.4 X-ray Exposure switch



X-ray Exposure switch can be mounted on the wall. Hand switch includes x-ray exposure switch as well as emergency switch which terminate the x-ray unit immediately in emergency.

2.5 Status LED

According to the unit status, status LED shows with different colors
Status LED is loactated at main body and hand switch mount.

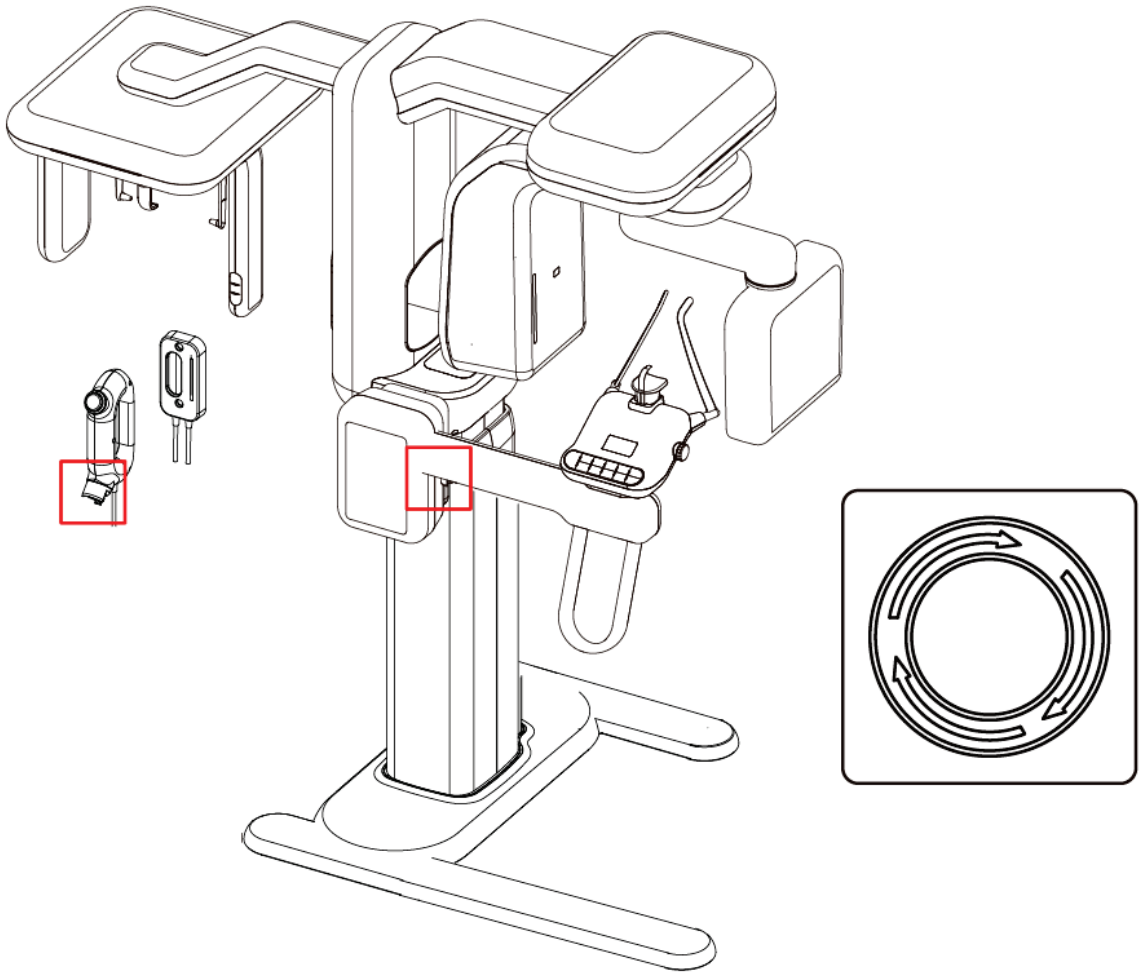


LED Color	Status
Blue	Turning Gantry Unit
Yellow	Radiation
Green	Getting ready
Red	Error and Stop, emergency switch is pressed down

2.6 Emergency switch

Press the switch to stop the X-ray unit operating in an emergency.

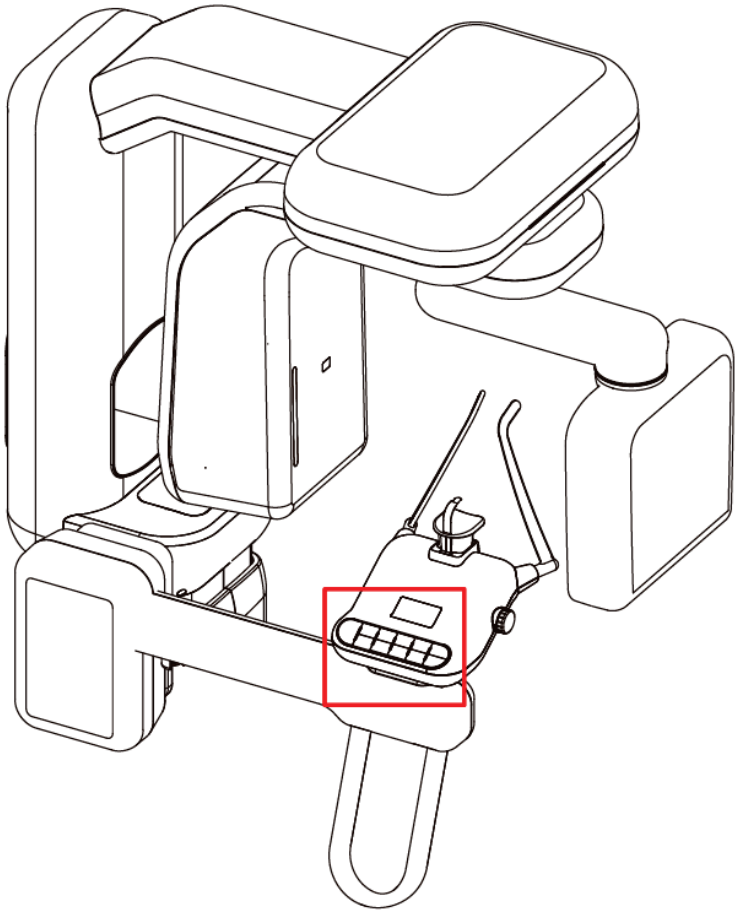
- The emergency switch is located on the top of the stationary column and hand switch. Please refer to the above picture for the loacation.
- When the emergency switch is pressed down, all movement of the X-ray unit are blocked and the unit will not generate readiation.
- Turn emergency switch right, X-ray unit will automatically restart.

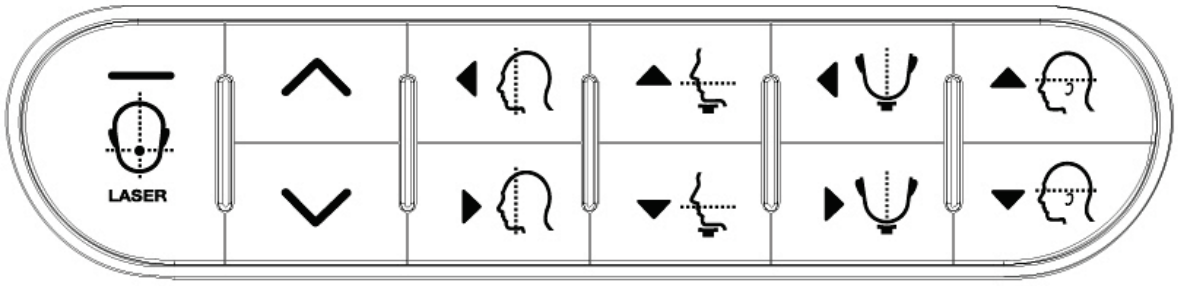


The emergency stop switch must be used in an emergency.

2.7 Control button

The control button enables you to adjust the unit movment and activate the beams to correctly postion the patient.

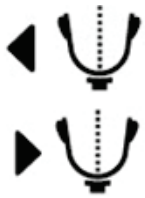




Do not adjust the machine during operation.

2.8 Laser control button

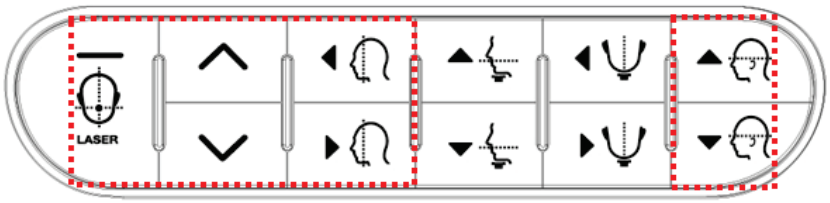
Adjust the unit height to get the Frankfort pland laser before the exposure.

	Controlling unit height . Lift DOWN Lif UP
	Turn ON/OFF unit laser. When pushing once, laser turns on and pushing one more time and laser turns off. Laser will turn off after time. It will turn off automatically.
	Using these buttonswhen equipment's gentry is moved forward and backward. By using laser, use to decide patient's exposure location. FORWARD :moving gentry to user. BACKWARD :moving genty, opposite side to user.
	Using these buttons when equipment's Chinrest is moved to up and down. By using laser, use to decide patient's exposure UP :Move Chinrest up. DOWN :Move Chinrest down.
	Using these buttons when equipment's Chinrest is moved to left and right. By using laser, use to decide patient's exposure LEFT :Move chin-rest to left. RIGHT :Move chin-rest to right.
	Using these buttons when you need to move Frankfort laser to up & down. By using laser, use to decide patient's exposure UP :Move Frankfort laser to up. DOWN :Move Frankfort laser to down.

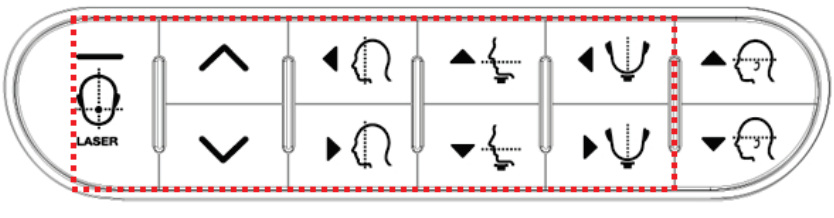
Be careful not to project the laser beams directly into the patient's eyes as this could severely damage the patient's vision.

2.8.1 Avaliable control button by mode

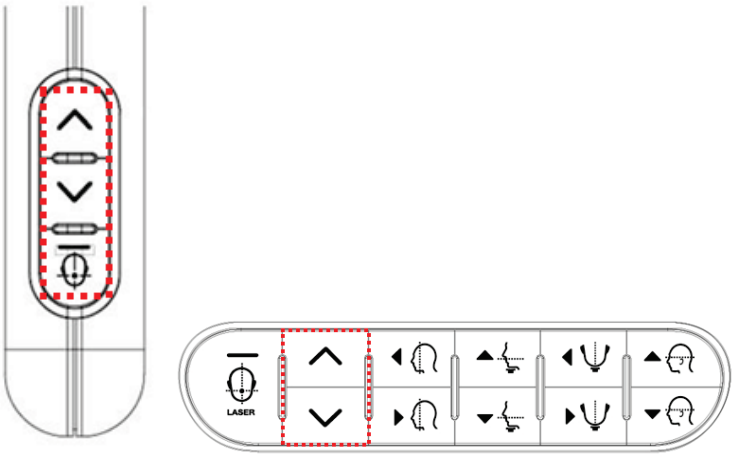
Following is available control buttons by each X-ray exposure mode.



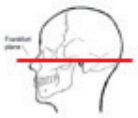
(Option)



(Option)

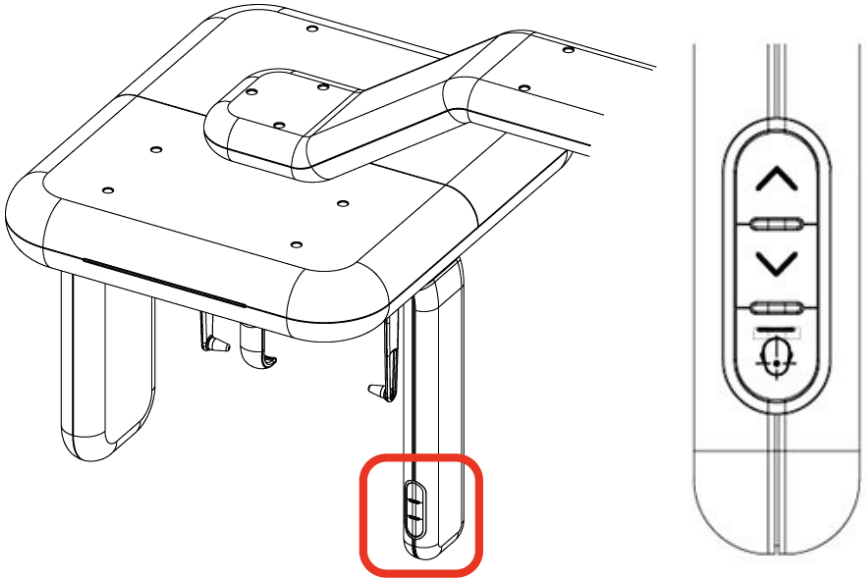


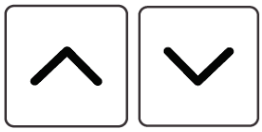
Frankfort laser is a plane passing through the inferior margin of the left orbit and the upper margin of each ear canal



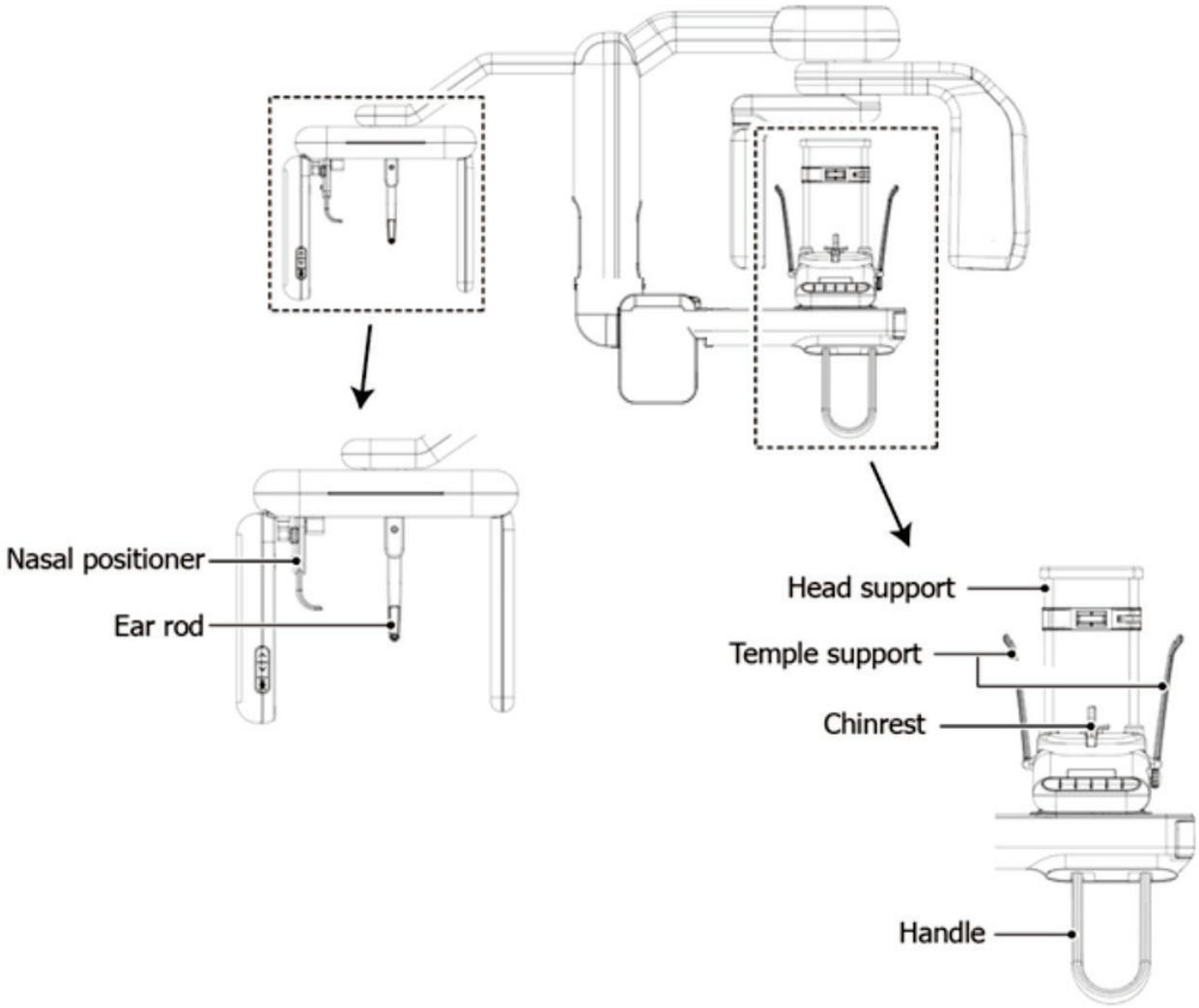
2.9 2nd Equipment control button (Option)

2nd equipment control button allow you to adjust the unit height and laser ON/OFF.



	Controlling unit height Lift DOWN Lift UP
	Turn ON/OFF equipment's laser. When pushing once, laser turns on and pushing one more time and laser turns off. Laser will turn off after time. It will turn off automatically.

2.10 Patient support part



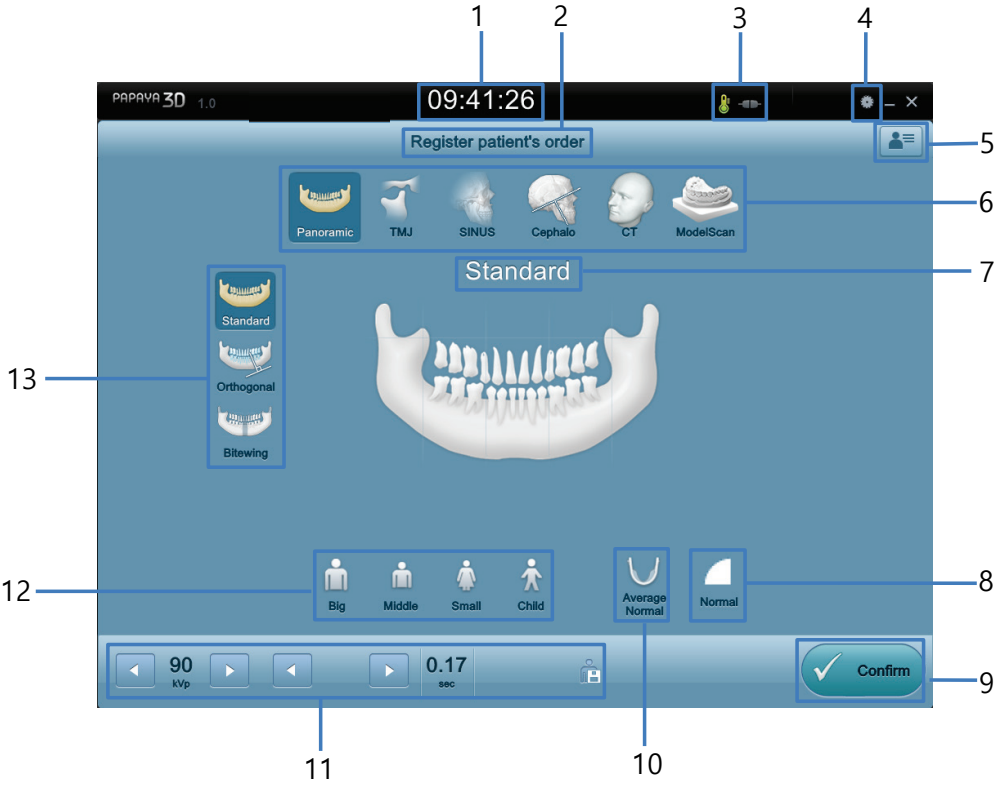
WARNING

Always ensure that equipment movement is not obstructerd by the patient's clothing, medical device (such as wheelchair), or the patient themselves.

When positioning seated patients (e.g. in a wheelchair) always first move the X-ray unit down before you position the patient in the X-ray unit.

3. OP (Operation panel)

3.1 OP Structure



[Operation Panel Program Screen]

No.	Title	Description	Refer to
1)	Time	Displaying current time.	
2)	Patient's Information Display Screen	Displaying patient's information ex) ID Age (Sex) Name	
3)	Equipment display	Display equipment's condition	Refer to 3.6
4)	Option setting	Set options for the environment	Refer to 3.9
5)	Order list button	Managing patient information and order list	Refer to 3.8
6)	Exposure Mode Choose Button	Choosing equipment's exposure mode.	Refer to 3.2
7)	Exposure Program Display	Displaying selected exposure program	
8)	Image Quality Choose Button	Deciding exposure image's quality.	Refer to 3.4
9)	Equipment Movement Button Part	Deciding exposure condition and preparation completion and opinion.	
10)	Jaw shape selection button	Choosing patient jaw shape and size	Refer to 3.7
11)	Exposure Condition Display and Change Part	Controlling equipment's exposure condition manually.	Refer to 3.5
12)	Patient's Size Choose Button	Choosing according to patient's size by pre-set value.	Refer to 3.3
13)	Exposure Program Choose Button	Choosing equipment's exposure mode by exposure program.	Refer to 3.2

3.2 X-ray Exposure Mode

PAPAYA 3D Provide a wide range of X-ray exposure mode to suit various applications.
Push the exposure mode button of the main view to select the exposure program.

No.	Exposure mode	Mode Type Program		Refer to
1)	Panoramic		Standard	3.2.1
			Orthogonal	
			Bitewing	
	TMJ		Lateral	
			PA	
			LAT- PA	
	Sinus		Midsagittal	
			Lateral	
			PA	
2)	CT		Tooth	3.2.2
			Teeth	
			Jaw	
			TMJ	
			Face	
3)	Cephalometric (Option)		Lateral	3.2.3
			AP	
			PA	
			Water's	
			SMV	
			Carpus	
4)	ModelScan		Stone	3.2.4
			Impression	

3.2.1 Panoramic

Panoramic

▪ Standard

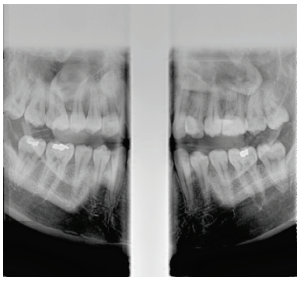
Standard program has standard Pano's image field of view and Taking exposure.

▪ Orthogonal

Orthogonal program is comparison to Standard program that takes x-ray exposure with x-ray beam's angle as 90° of penetration to chin, and produce field of view. At standard panoramic image, teeth is overlapping and effect is decreasing, but exposure area's opposite side's shadow of teeth and chin and add an effect.

▪ Bitewing

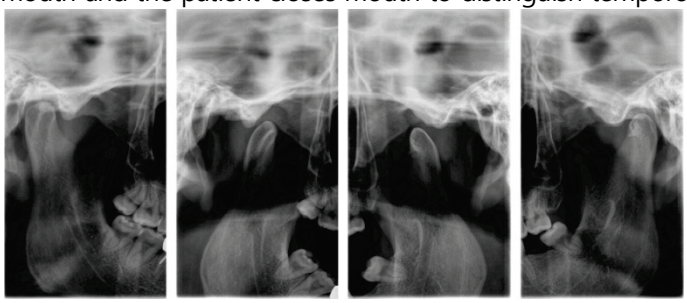
Bitewing program works at panoramic image and take exposure of bitewing area and take exposure of trajectory of patient. In basic, Bitewing program is orthogonal program and take exposure with same angle.



TMJ

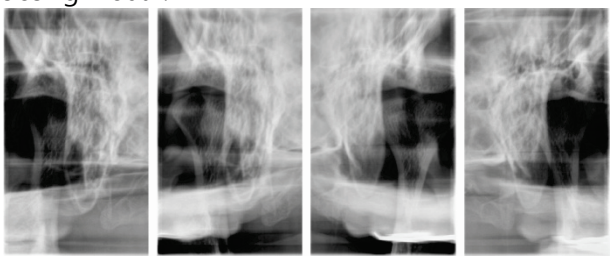
▪ Lateral

Lateral program exposure has function of trajectory and side of temporomandibular joint. Taking exposure of both sides of temporomandibular joint and comparing, patient opens mouth and the patient closes mouth to distinguish temporomandibular joint exposure.



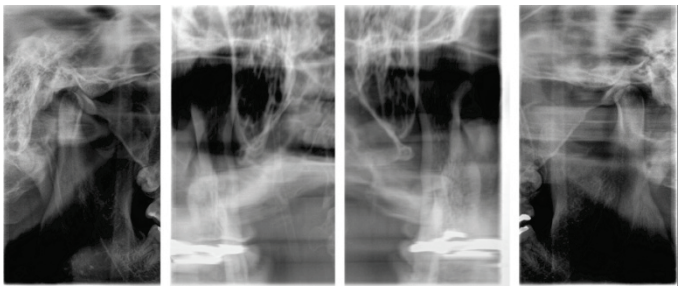
▪ PA

PA(Posterior Anterior) program takes exposure of temporomandibular joint's PA(Posterior Anterior) direction and take exposure with trajectory direction. Both sides of temporomandibular joint can take exposure and using as patient opening mouth and closing mouth.



▪ LAT-PA

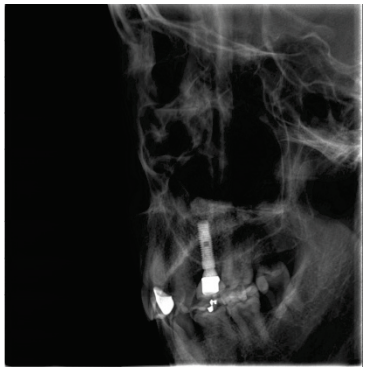
LAT(Lateral) – PA(Posterior Anterior) program takes exposure of temporomandibular joints' PA (Posterior Aanterior) and Lateral It will be able to take total 4 times exposure depending on open and close for Lateral and PA.

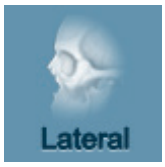


Sinus

▪ Lateral Mid.

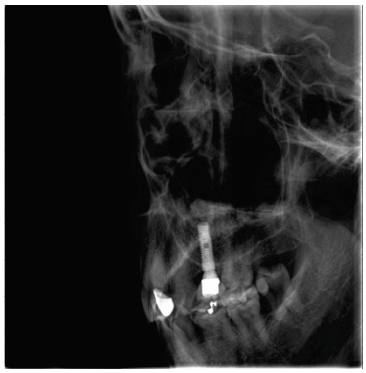
Lateral Mid program exposure enables to take exposure of maxillary sinus and use it. The image's focus is on midsagittal surface.





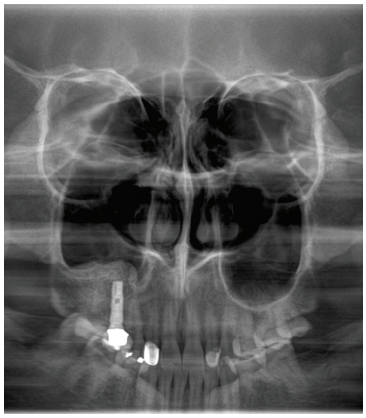
▪ Lateral

Lateral program exposure is like Lateral Mid, at maxillary sinus, take a exposure at maxillary sinus' trajectory. From midsagittal surface's standard, now focus surface can be toward left or right side.



▪ PA

PA(Posterior Anterior) program takes an exposure at PA's direction of maxillary sinus.



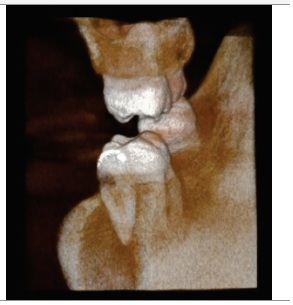
3.2.2 CT

CT

▪ Tooth

Tooth Program for capturing 1-2 teeth in detail. Tooth mode is the closest mode to check detal nerves

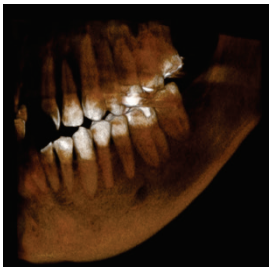
F.O.V.	Child	Φ35-H40, Φ35-H60
	Adult	Φ40-H50, Φ40-H70



▪ Teeth

Teeth Program for capturing a number of teeth

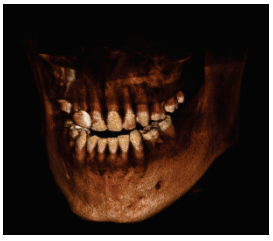
F.O.V.	Child	Φ60-H40, Φ60-H60, Φ70-H40, Φ70-H70
	Adult	Φ70-H50, Φ70-H70, Φ80-H50, Φ80-H80



▪ Jaw

Jaw Program for capturing jaw shape

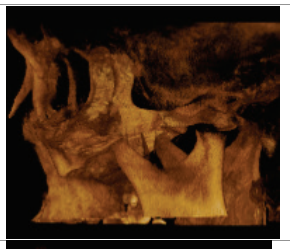
F.O.V.	Child	Φ140-H50, Φ140-H80, Φ160-H50, Φ160-H80
	Adult	Φ140-H50, Φ140-H80, Φ160-H50, Φ160-H80



▪ TMJ

TMJ Program for capturing temporaomandibular joints

F.O.V.	Child	Φ160-H50, Φ160-H80
	Adult	Φ160-H50, Φ160-H80



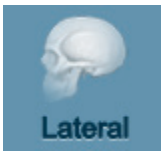
▪ Face

Face Program for capturing maxillofacial area

F.O.V.	Child	Φ140-H140, Φ160-H140
	Adult	Φ140-H140, Φ160-H140

3.2.3 Cephalo (Option)

Cephalo

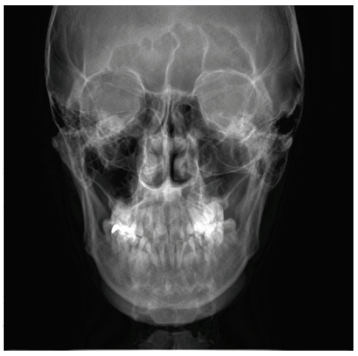


▪ Lateral

Cephalo Lateral program exposure has at patient's side, and X-ray beam's penetration of direction.

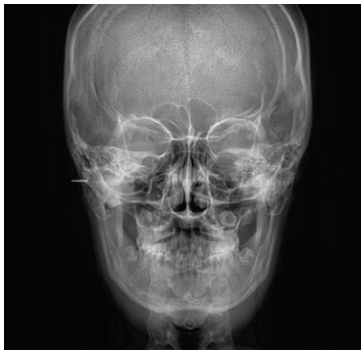
▪ AP

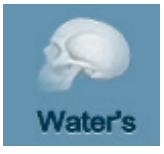
Cephalo AP(Anterior Posterior) program exposure is that at toward AP's direction, X-ray penetrate and taking exposure of skull.



▪ PA

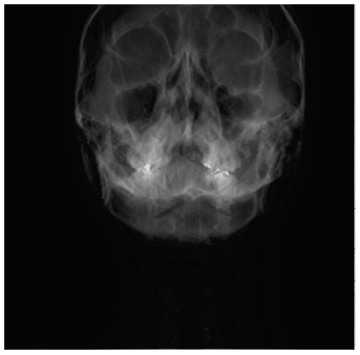
Cephalo PA(Posterior Anterior) program exposure is that at toward PA's direction, X-ray penetrate and taking exposure of skull.





▪ Water's

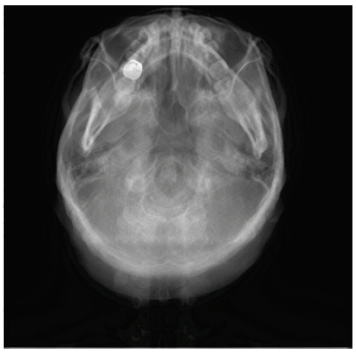
Water's view is when the patient is at with Frankfort line and with detector surface, and taking exposure with 45 degree angle slope and is exposuring area of head

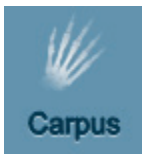


Cephalo

▪ SMV

SMV(Submento vertex) program takes exposure of according to patient's Frankfort line and the surface of detector is leveled with horizon and put patient in this position to take exposure.





▪ Carpus

Carpus program takes exposure of wrist. In order to do Carpus exposure, using carpus exposure wrist support plate(Option) and install it and take exposure.

3.2.4 ModelScan Program(Option)

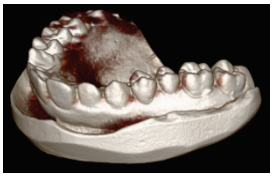
• ModelScan

▪ Stone

Dental Stone Model exposure program to extract STL Data

[F.O.V.]

Φ140-H80



▪ Impression

Dental Impression Model exposure program to extract STL Data

[F.O.V.]

Φ140-H80

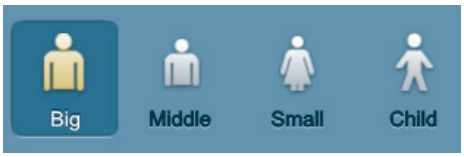
3.3 Auto Position

When the resection patient retakes the image, the program, the shooting condition, and the equipment location that were taken in the past are automatically set and taken. You can shoot without adjusting the patient position and acquire the optimal image When the resection patient retakes the image, the program, the shooting condition, and the equipment location that were taken in the past are automatically set and taken. You can shoot without adjusting the patient position and acquire the optimal image

Picture	Description
	You can use the Auto position function The OP screen appears. - Of a shooting program with a history of past shooting It will only appear. - A list icon  appears to the right of the OP to perform the function.
	When you click the list icon with the left mouse button, it displays the past image. **Icon** / **Description**  When you click the corresponding icon The previous image appears.  When you click the corresponding icon The following image appears.  When you click the corresponding icon The captured image appears.

Picture	Description
	When you click the OK button, the equipment moves and the shooting conditions change like the settings you had in the past.   When you click the list icon with the left mouse button again, The default shooting conditions are changed. .

3.3 Patient size



Select patient size from the 4 icons.
From left to right, the icons represent big, male, female and child.
The dose is increased towarding left and decreased toward right.
The exposure values will automatically change according to the selected paient size.

3.4 Exposure speed and change of image quality

Select the image resolution you wish to use in Panoramic and Cephalo mode. From top and down, the icons represent normal, fast and HD. Select fast

Fast: Fast time, image resolution is lower than normal
HD: Sharp images, time is than the other options
Ultra Fast : Use when you want to shoot faster than Fast,
Quickly scan the patient for 2 seconds to acquire images.

Select the image resolution you wish to use in CT Mode. From the top to down, the icons represent Low dose, Normal, high def, high res. Endodontic.
Max. 2 type of izmage resolution are provided at each CT mode such as tooth, teeth, jaw and face.

Cephalo (Option) This function is supported when shooting with the lateral program.
- Normal: Takes a picture with a length of 240 mm.
- Wide: Taking a picture with a length of 310 mm, it is possible to take a whole picture of Lateral.

3.5 X-ray exposure condition setting

Incremental changes to kVp and mA can be made by the pressing left, right side of arrow button.
kVp can be changed 1kVp by per click and mA can be changed 0.5mA by per click. (Exposure time can not be controlled)
Changed exposure condition can be saved by clicking Save button.

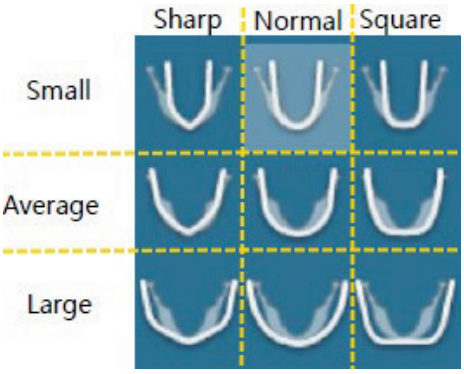
The exposure condition value is chosen automatically when choosing patient size & exposure program.
If you'd like to change the exposure condition by yourself, you can hand operated.

3.6 Device condition display screen

Device condition display screen shows when the unit is ready for capture
or any trouble occurs.

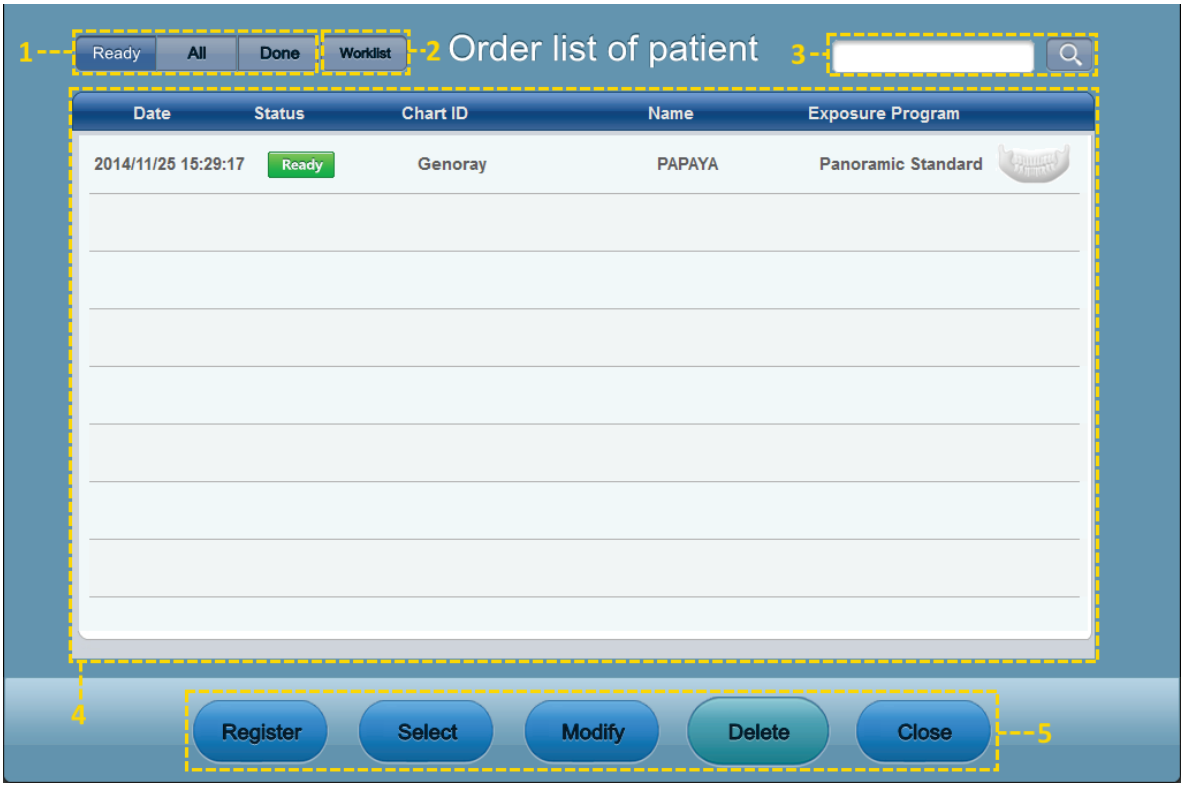
Condition	Description
	It shows the connection of device & PC. When the device is connected to PC, it turns orange color
	Green => Possible to X-ray exposure Red => Impossible to X-ray exposure (Upper than 55℃, overheated), Turn off the equipment. It must have a cooling time of 2-3 hours. After then turn on the power, please make sure that it is ready for exposure. It shows the connection condition of the detector.

3.7 Choice of the jaw form



Select different jaw shape and size of patients.
There are 9 options as decribed in the picture.

3.8 Order List



Order list management window appears when click the order list

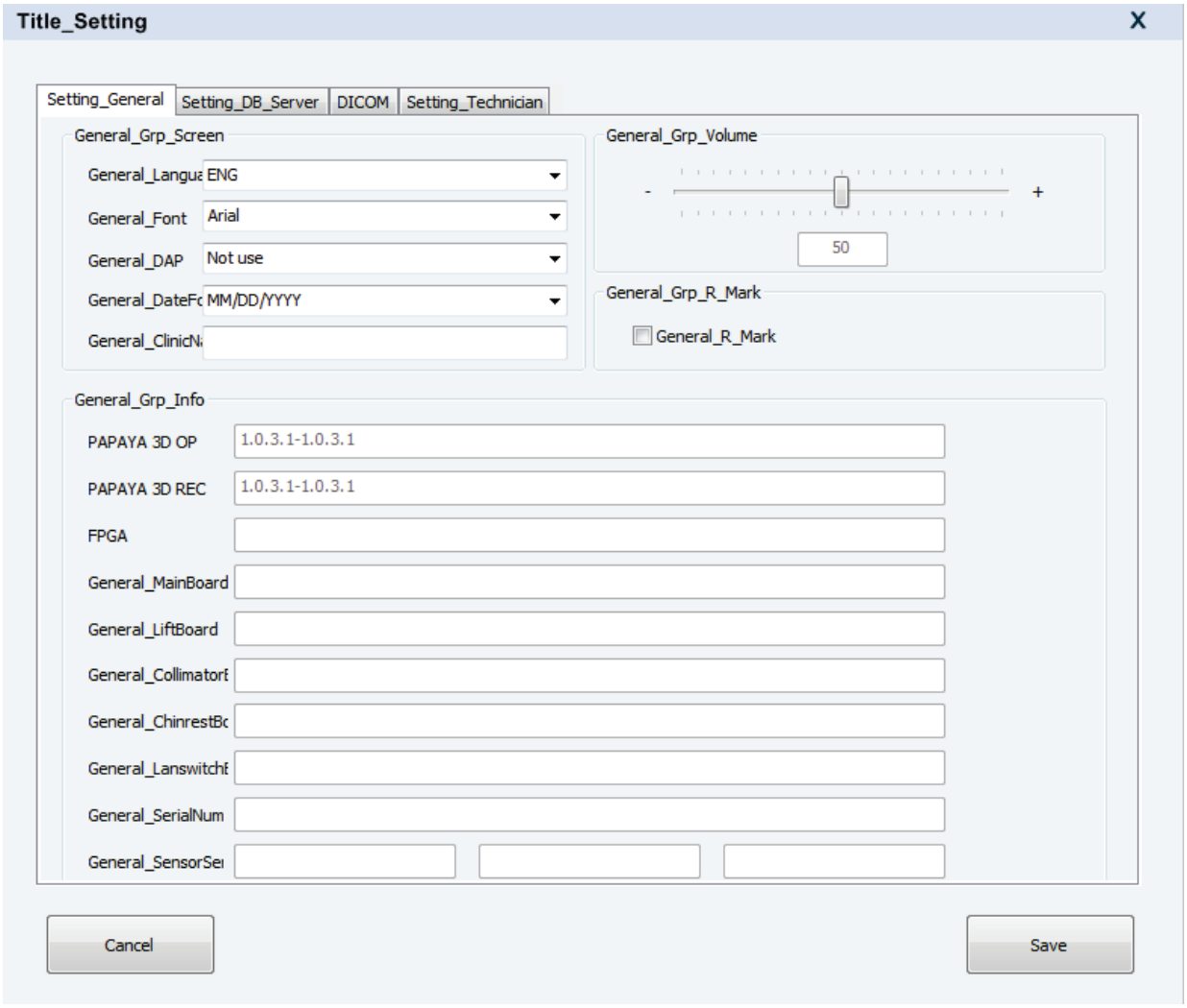
1)	Order status filter	Displaying patients' information of registered order by following selected filtration option. - Ready: Displaying order information be in ready and wait status. - All: Displaying all order information. - Done: Displaying order information exposure is finished.
2)	Worklist	Loading patients'information from worklist server.
3)	Search	Searching order information.
4)	Order informationwindow	Displaying registered order information. (Exposure time, status, ID, name, exposure program etc)
5)	Order management button	Managing order. - Register: Execute order registration window. - Select: Select registered order of order list for taking image. - Modify: -Modify registered order information. - Delete: Delete registered order information. - Close: Close order list and return to main screen of OP.

3.8.1 Patient registration

Click patient registration to pop-up the registraion window
Enter patient information and selecting exposure program

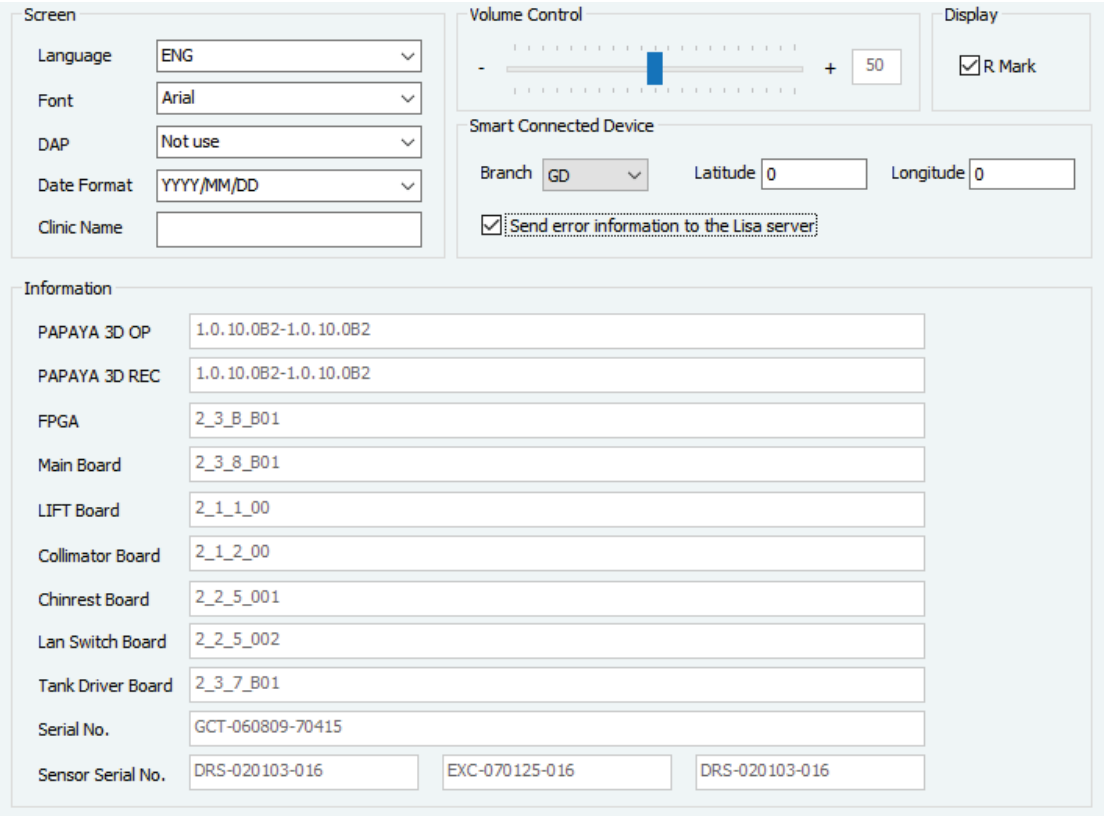
3.9 Option setting

Set the options for the usage environment of PAPAYA 3D OP program.

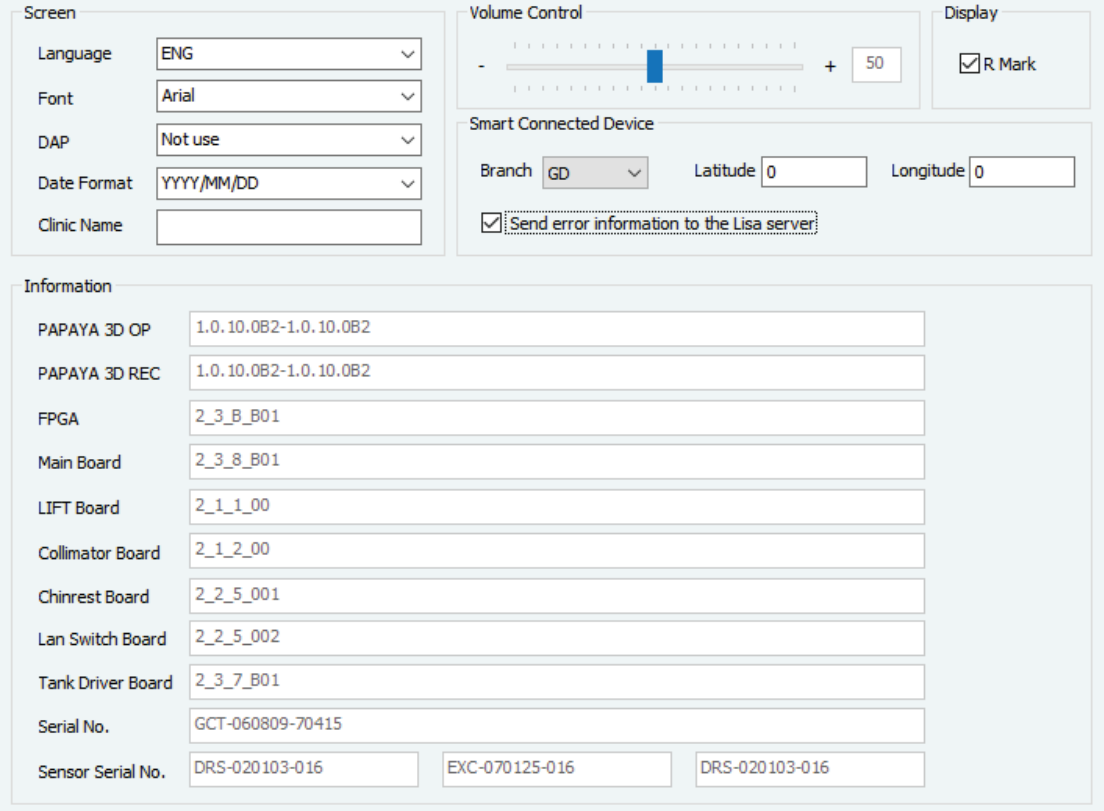


TAP designation	Explanation
General	Screen configuration, equipment, and display the program version
DB Server	Screen configuration, equipment, and display the program version
DICOM	Set external link and DICOM-related functions
Technician	Engineer mode

3.9.1 General

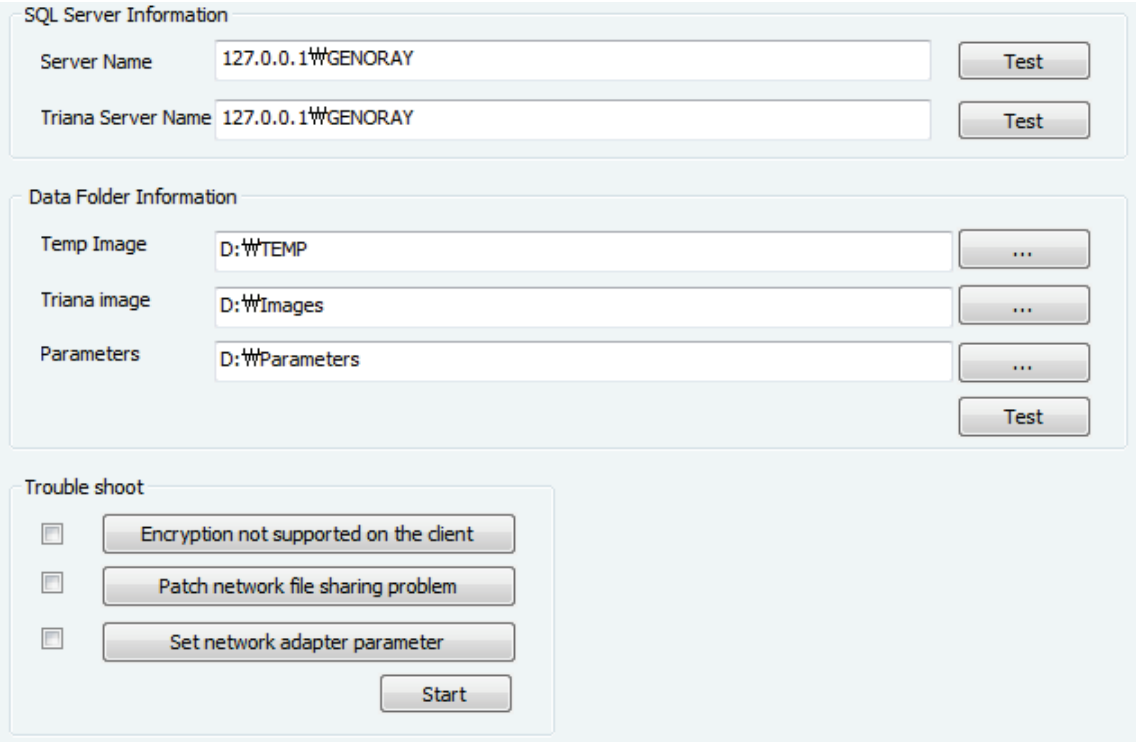


Designation	Explanation
Language	Setting language
Font	Setting Font
DAP	Setting DAP output measurement
Date format	Setting data format.
Clinic name	Clinic Name input/save
Volume control	Controlling machine's volume sound
R-Mark	Setting exposure images' position mark's printing out / not printing out
Branch	Setting the branch of C/S support
Latitude	Set latitude location
Longitude	Set longitude location
Send error information to the Lisa server	Check whether it is sent to LISA server When an error occurs, the error information and log file are automatically transmitted to the LISA server
PAPAYA 3D OP	PAPAYA 3D OP Program version
PAPAYA 3D REC	PAPAYA 3D REC Program version
FPGA	FPGA version
M/B	PAPAYA 3D Mainboard version



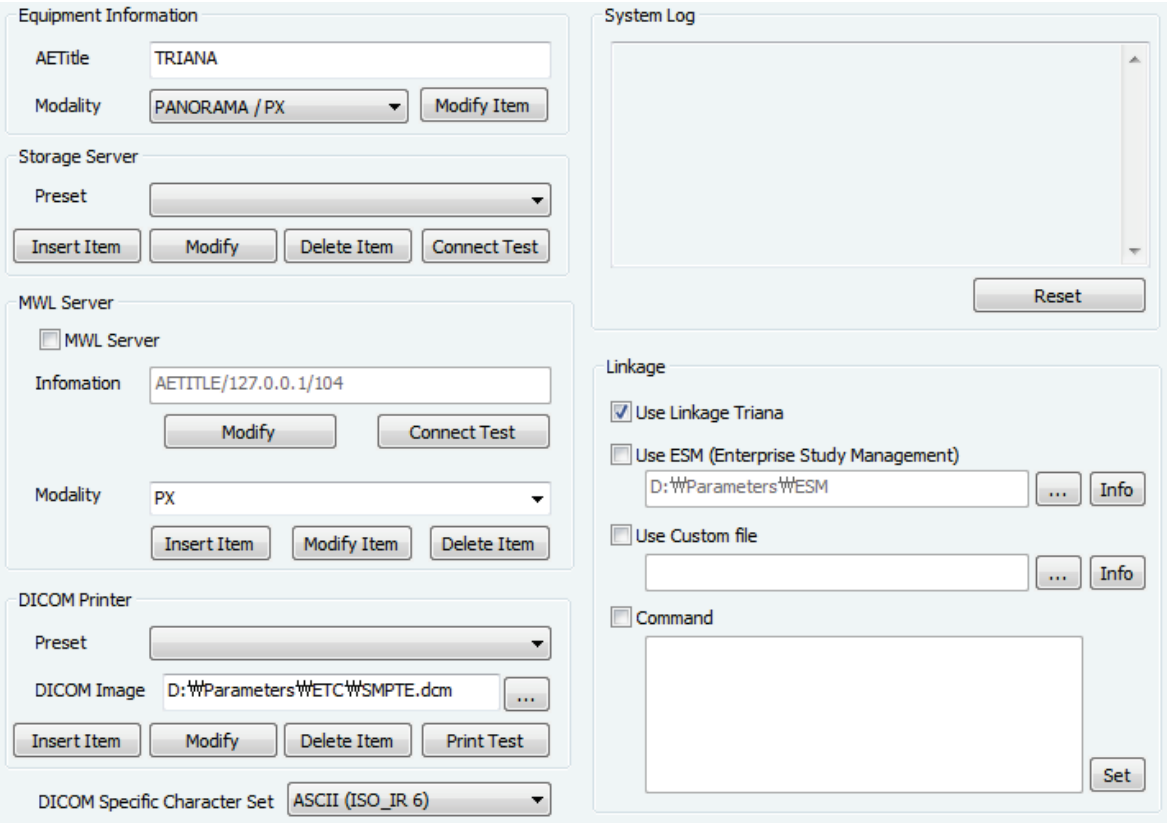
Designation	Explanation
Lift	PAPAYA 3D LIFT version
Collimator board	PAPAYA 3D Collimator board version
Chinrest board	PAPAYA 3D Chinrest board version
Lan switch board	PAPAYA 3D Lan Switch board version
Tank Driver Board	PAPAYA 3D Tank driver board version
Serial num	PAPAYA 3D unit serior number
Sensor serial num	Sensor serior number

3.9.2 DB Server



Designation		Explanation
SQL server information	Server name	Set the path for order DB
	Triana server name	Set DB path at Triana
Data folder information	Temp image	Set the saving path for images manged by PAPAYA 3D OP
	Triana image	Set the saving path for Images managed by Triana
	Parameter	Set papameter path
Trouble shoot	Click the each button to solve the problem	

3.9.3 DICOM



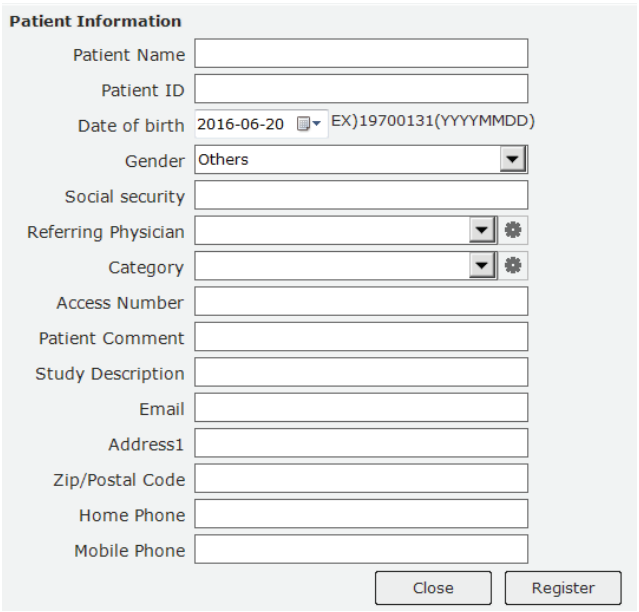
Designation	Explanation
Linkage	Set about interface about compatibility
Equipment information	Input machine's information for DICOM usage
Storage server	Set DICOM Storage server
MWL server	Set Work list server
DICOM printer	Set DICOM Printer
System log	When pushing test button and printing out processing result

4. Image acquisition

4.1 Image acquisition

4.1.1 Starting Triana software

To create or open an existing patient record, follow these steps:

Patient registration	
1) Patient registration	 Click the patient registration button.
2) Register new patient	 Enter the "patient information" on the left side of patient registration When you have finished entering data, click patient registration.
3) Open existing patient record	On the "Patient Ilst", searching for a patient in a condition the patient's name, chart number, date of registration and etc is entered by double click.

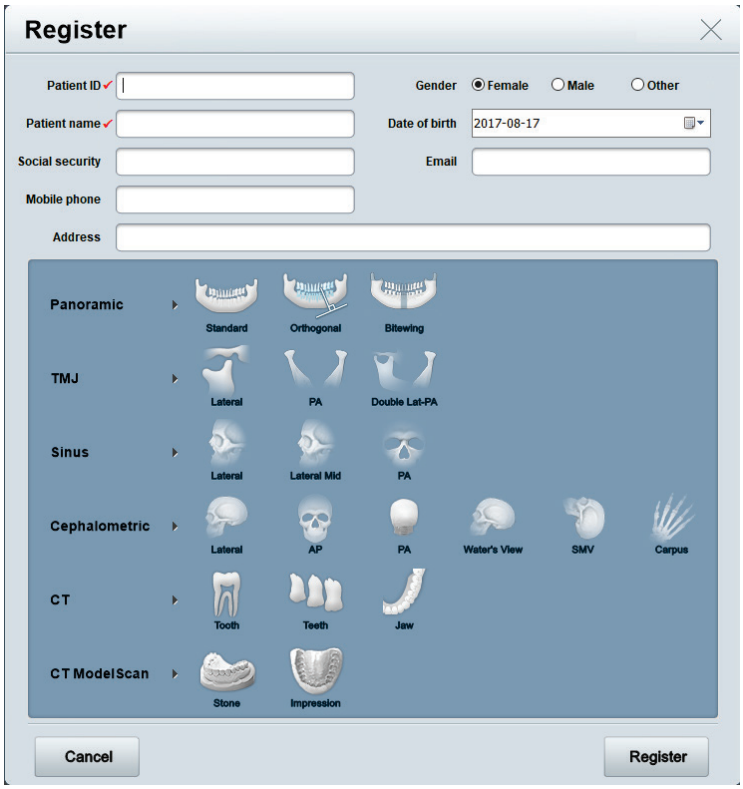
OP			
1)	  	Panoramic CT Cephalo (Option)	When you have finished "Patient registration", select the device in the Selection. If Cephalo, CT (optional specification) is included, you can choose Pano as well as both Cephalo and CT
2)		Image acquisition button	Select the device, and press the button image acquisition, OP screen for exposure is displayed.

Please refer to the TRIRANA manual for detailed information.

4.1.2 OP execution

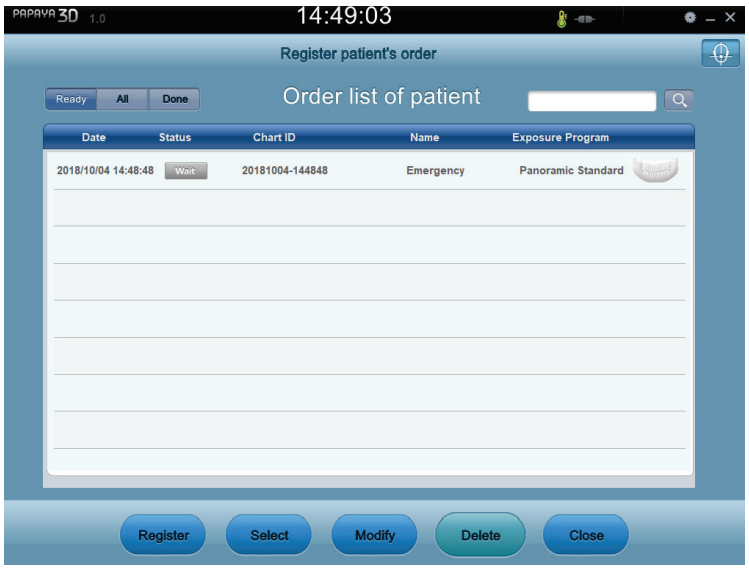
Please follow below steps for OP registration.

1)



Click the registration button for starting order list(refer to 3.8)
After selecting the exposure program and input of patient information, and then complete the registration in the "Register" button.

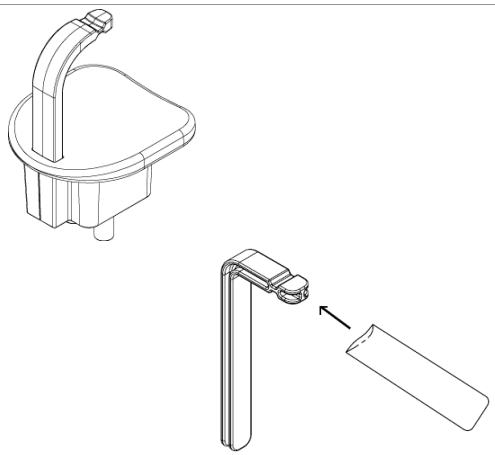
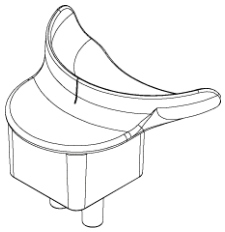
2)



Information registered in the list of order, order list will be displayed.

4.2 Patient positioning
4.2.1 Panoramic mode

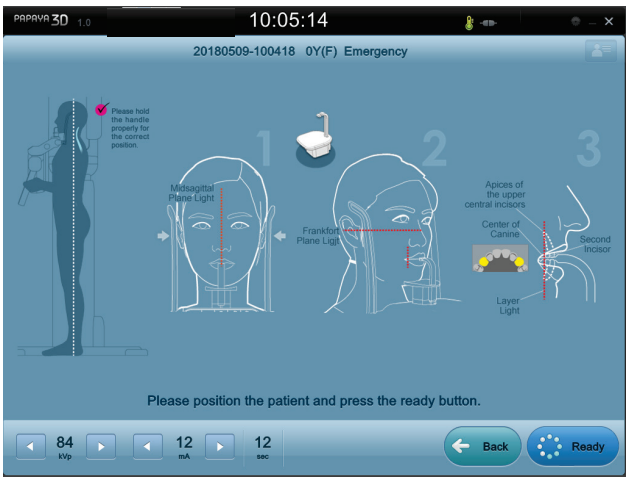
Panoramic mode is scanning upper and lower jaw

<table>
<tr><td rowspan="2">1)</td><td> 
[For standard]</td><td>Install the chin-rest for standard mode on device.
Use the bite with the hygienic cover.
Use a hygienic cover for every patient.</td></tr>
<tr><td> 
[For edentulous patients]</td><td>Use the edentulous bite for an endentulous patient.
  Please refer to the number 2.2.1.1 regarding chin rest installing method</td></tr>
<tr><td>2)</td><td colspan="2">Run OP by selecting patient registration and Pano (Refer to 4.1)</td></tr>
</table>

3)

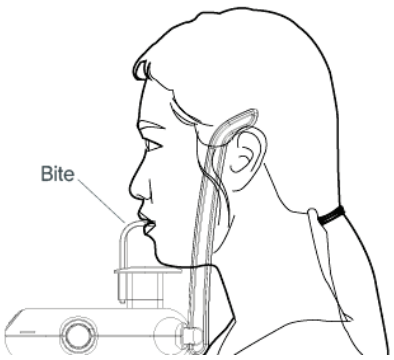
Set the exposure conditions and Panoramic mode of OP that were performed, and when you click the bottom right of the "OK" button, the screen sort of position of the patient is displayed

4)

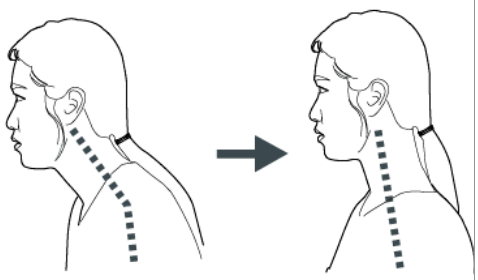
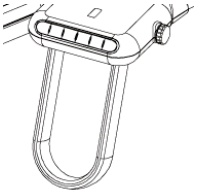
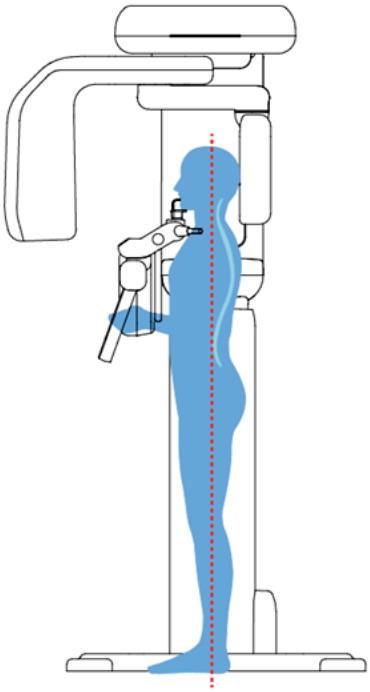


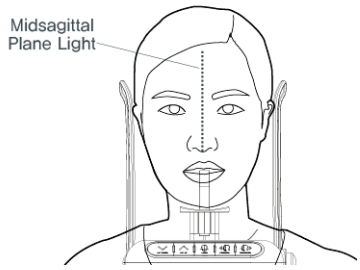
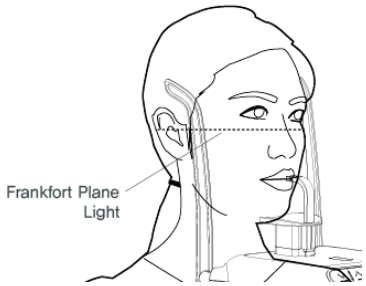
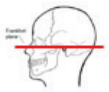
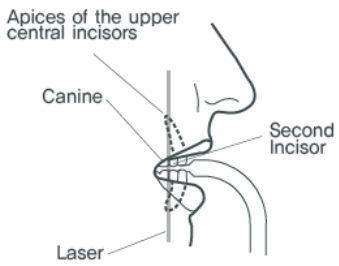
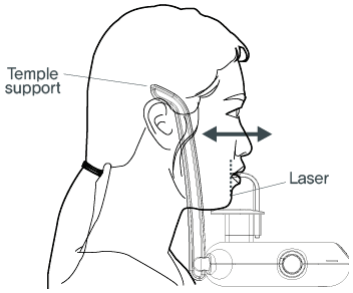
After positioning the patient, adjust the height to match the height of the patient by the operation button

5)



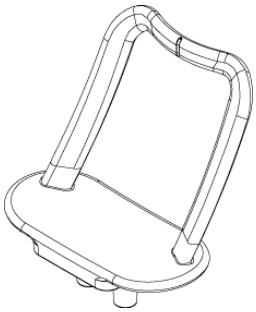
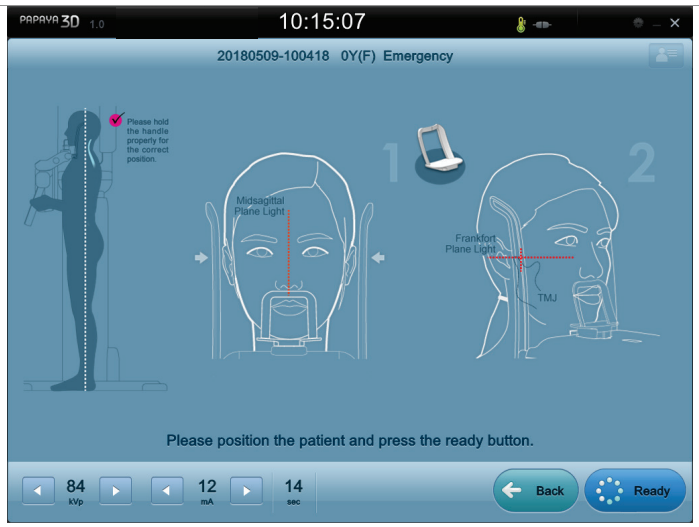
After covering bite with a hygienic cover, let patient vite it as shown in the picture.

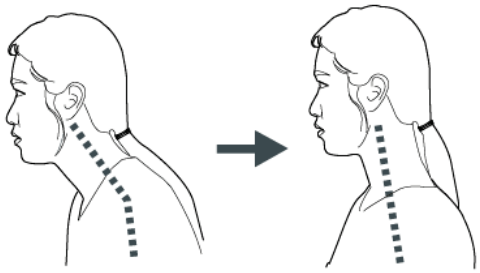
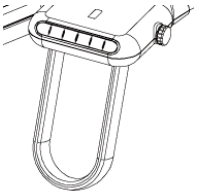
6)		Let the patient be positioned accoding to open/close the mouth. If patiet can't raise their nect, set the height of deivce by using device set button.
7)		When the postion of patient is correct, lead the patient grab the handle
8)		Check again if the patient's posture is correct.
9)		Set the position of patient by pressing laset button for the patient stands on correctly The unit includes 3 type of lasers. Before exposure, let the patient be positioned correctly by them in order to get good images

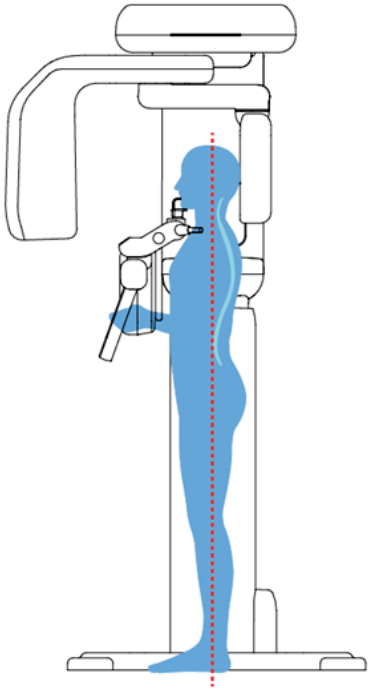
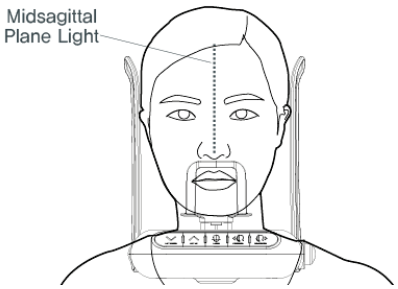
10)		Set midsagittal laser to midsagittal of patient by moving patient's head.
11)		Set Frankfort laser to Frankfort of patient by controlling angle of patient'shead. If the position of laser is not correct, set the height of laser bymoving Frankfort laser control knob. Frankfort laser is a plane passing through the inferior margin of the left orbit and the upper margin of each ear canal 
12)		Canine laser moves the laser position 'Forward', 'Backward' button on the control panel of the equipment to be placed on the canine of the patient. - Forward button : move the laser toward you - Backward button : Laser move in the opposite direction to the User Laser is turned off automatically after few minutes or if the exposure starts.
13)		Check whether the position of 3 lasers is correct after positioning the patient by using Temple support. If it is not correct, let the patient positioned correctly.

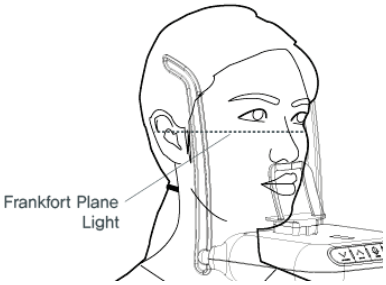
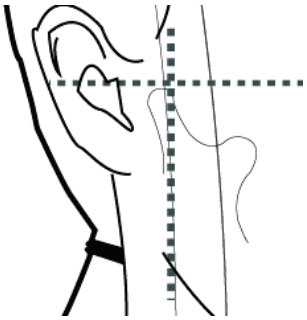
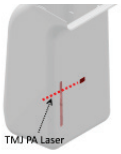
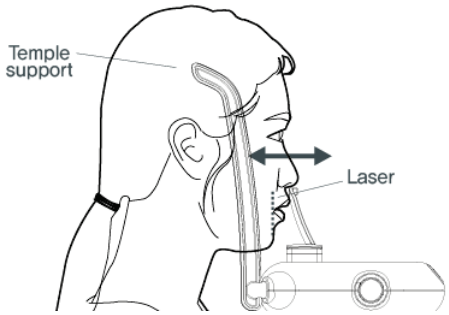
4.2.2 TMJ mode

TMJ mode takes the image of lower teeth on TMJ part.

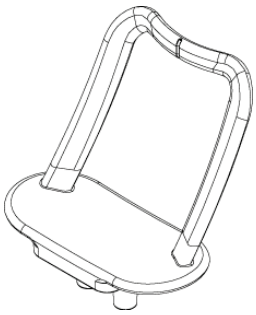
1)	 [For TMJ mode]	Install the chin-rest for TMJ mode on device. Refer to 2.2.1.1.how to install chinrest.
2)	To run OP by patient enrollment and Pano selection. (Refer to 4.1)	
3)	 Set TMJ mode & exposure condition on operating OP and click "Confirm" on right-low side, patient position control screen will come out.	
4)	 Set the height by using control button after being the patient positioned.	

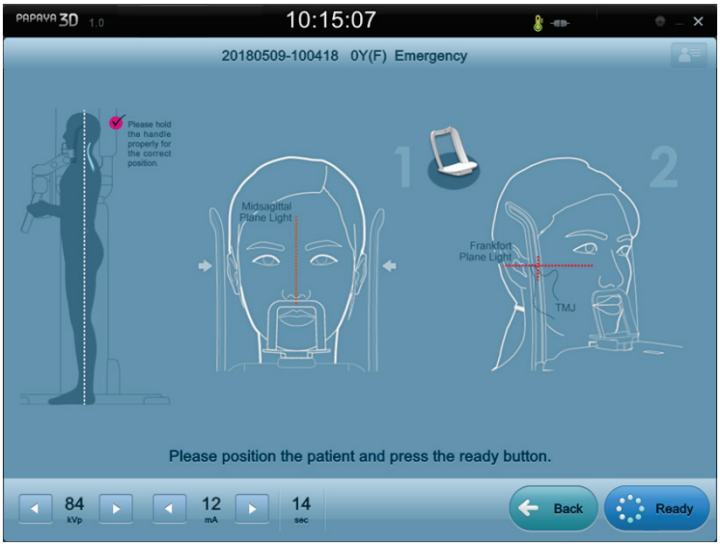
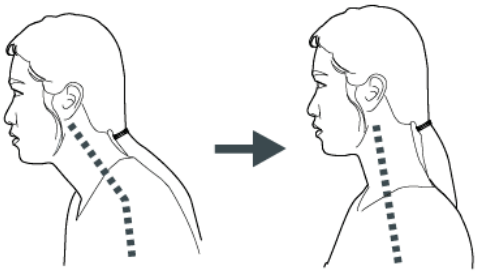
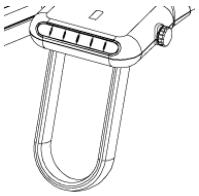
5)		Let the patient lean on the chin-rest like the image left. Let the patient be positioned according to open/dose the mouth.
6)		After covering bite with a vinyl cover, Let patientbite it as shown in the picture.
7)		When the position of patient is correct, lead the patient grab the handle.

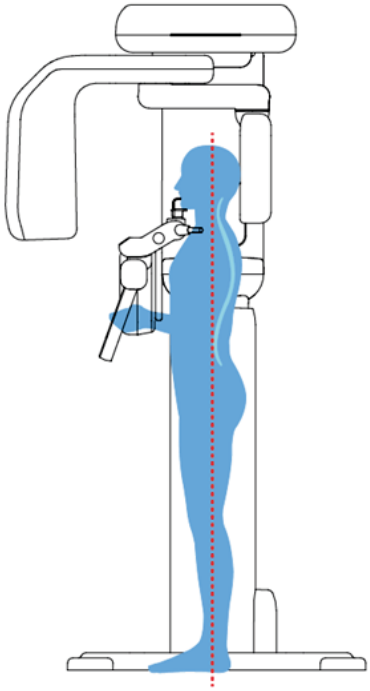
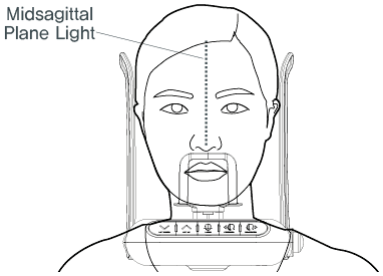
8)		Check again if the patient's posture is correct.
9)		After placing the patient on TMJ Bite block, press the laser button on the control panel equipment. Laser is consists of 3, you should let the patient be positioned for all 3 lasers correctly to get a good quality of image
10)		When the laser is turned on, set midsagittal laser to midsagittal of patient by moving patient's head.

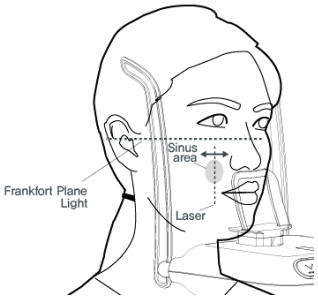
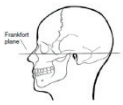
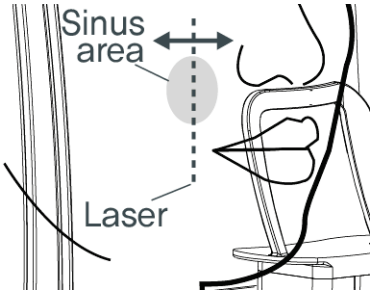
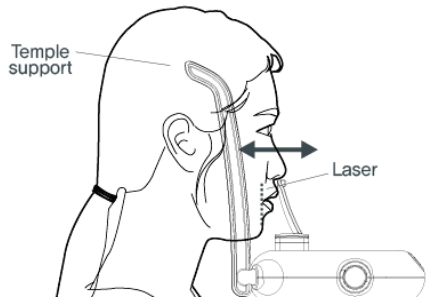
11)		Set Frankfort laser to Frankfort of patient by controlling angle of patient's head. If the position of laser is not correct, set the height of laser by moving Frankfort laser control knob. Frankfort plane is the straight line connecting upper part of an earhole & lower part of eyes. 
12)		Move the position of laser by using 'FORWARD' & 'BACKWARD' button on patient control button to be canine laser positioned on TMJ of patient.' FORWARD' button moves to user's direction but 'BACKWARD' button moves to opposite direction of user's. In the case of the exposure program is set to TMJ PA mode, move the Frankfort laser to the TMJ PA laser marked position and adjust patient's head angle to position the TMJ is on to the laser line. 
13)		Check whether the position of 3 lasers is correct after positioning the patient by using Temple support. If it is not correct, let the patient positioned correctly. Laser is turned off automatically after few minutes or if the exposure starts.

4.2.3 Sinus mode

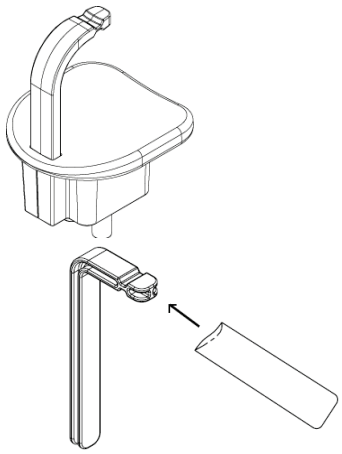
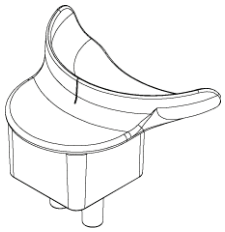
1)	 [For Sinus mode]	Install the chin-rest for Sinus modeon device. Refer to 2.2.1.1 how to install chinrest.
2)	To run OP by patient enrollment and Pano selection. (Refer to 4.1)	
3)	 Set Sinus mode & exposure condition on operating OP and click "Confirm" on right-low side, patient position control screen will come out.	

4)	 Set the height by using control button after being the patient positioned.	
5)		Position the patient as shown in the TMJ Bite block
6)		Let the patient be positioned according to open/close the mouth.If patient can't raise their neck, set the height of device by using device set button.
7)		When the position of patient is correct, lead the patient grab the handle.

8)		Check again if the patient's posture is correct.
9)		Set the position of patient by pressing laser button for the patient stands on correctly. Laser is consists of 3, you should let the patient be positioned for all 3 lasers correctly to get a good quality of image
10)		When the laser is turned on, set midsagittal laser to midsagittal of patient by moving patient's head.

11)		Canine laser is positioned to move the laser equipment parts operation 'Forward', 'Backward' button located in the Sinus to patients. - Forward button : move the laser toward you - Backward buttons : Laser move in the opposite direction to the User Frankfort plane is the straight line connecting upper part of an earhole & lower part of eyes. 
12)		Move the position of laser by using 'FORWARD'&'BACKWARD' button on patient control button to be canine laser positioned on Sinus of patient. 'FORWARD' button moves to user's direction but 'BACKWARD' button moves to opposite direction of user's. Laser is turned off automatically after few minutes or if the exposure starts.
13)		Check whether the position of 3 lasers is correct after positioning the patient by using Temple support. If it is not correct, let the patient positioned correctly.

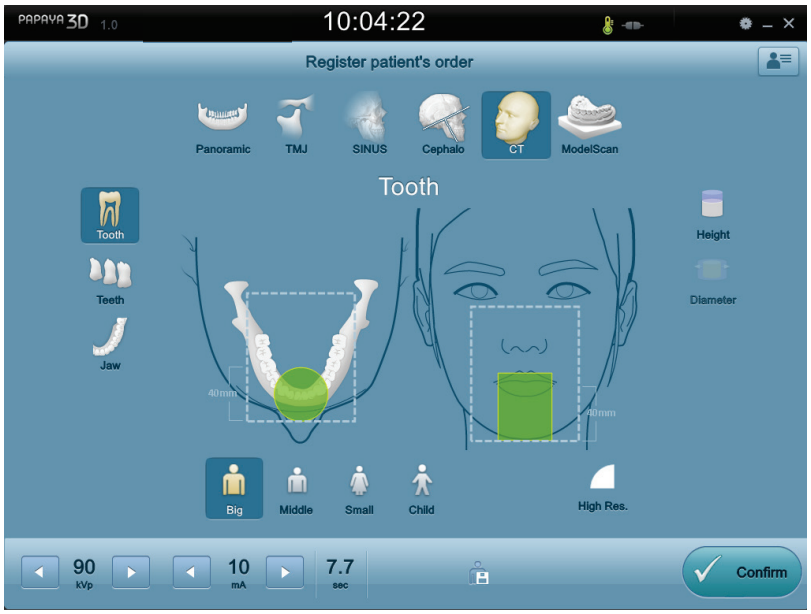
4.2.4 CT mode

1)	 [For standard]	When using a Hair band 1. Remove the temple support. 2. Install the hair band. When using a Head support 1. Remove the bite block. 2. Install the head support. 3. Install the bite block again. Use the bite with the hygienic cover. Use a hygienic cover for every patient.
	 [For edentulous patients]	Use the edentulous bite for an endentulous patient.

Please refer to the number 2. 2. 1. 1 regarding chin rest installing method
Please refer to the number 2. 2. 2. 1 regarding Hair band installing method
Please refer to the number 2. 2. 2. 2 regarding Head support installing method

To run OP by patient enrollment and CT selection. (Refer to 4.1)

2)

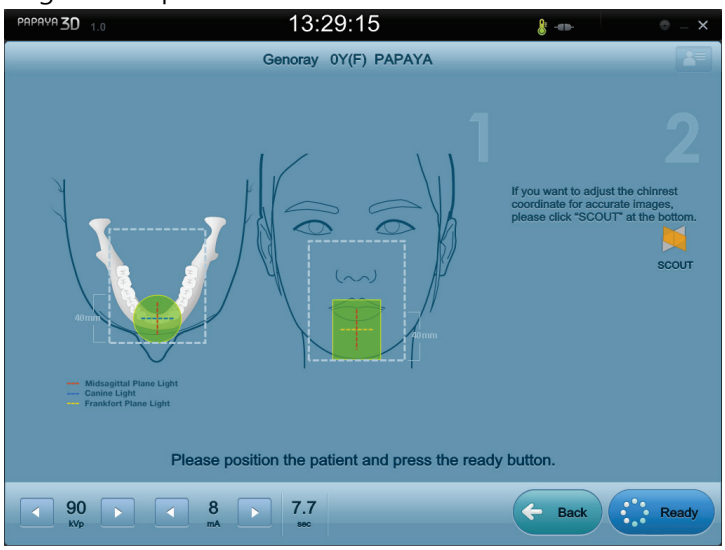


Set the exposure conditions and CT mode of OP that were performed, and when you click the bottom right of the "OK" button, the screen sort of position of the patient is displayed.

Volume size change		Adjust volume height
		Adjust volume width
Image quality		Low Dose, Normal, High Definition, High Resolution, Endodontic

3)

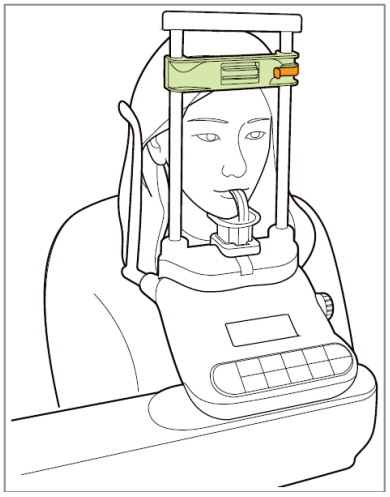
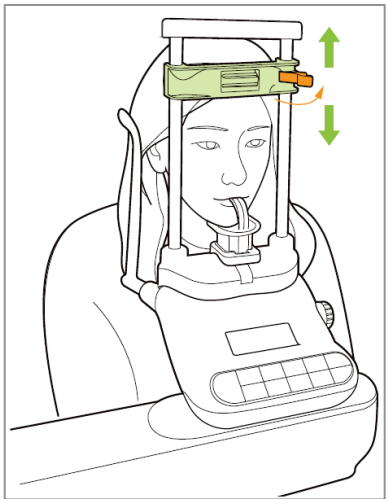
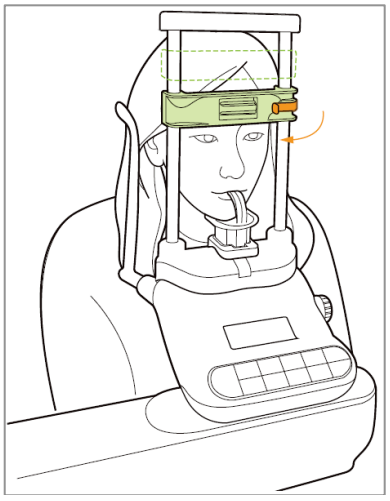
After positioning the patient, the operation buttons of the device to adjust the height to match the height of the patient.

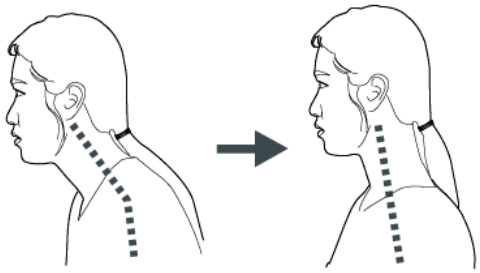
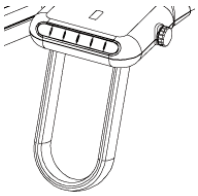


Before taking CT image, Click "SCOUT" button to get a more 64ccurate image.

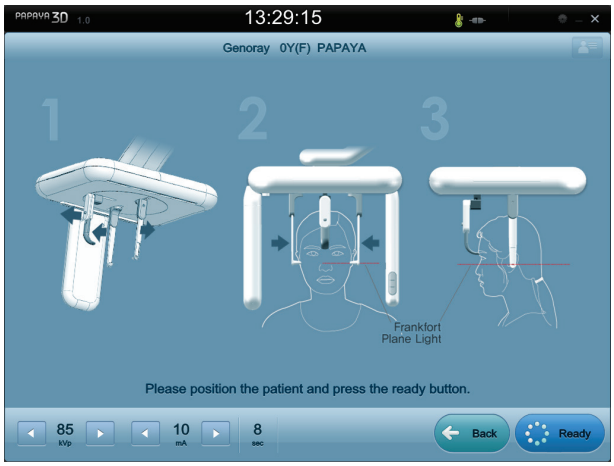
4)

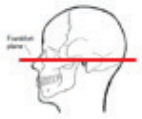
After covering bite with a vinyl cover, Let patientbite it as shown in the picture.

5)	Adjust the hair band to the patient's height. When using the head support, fix the patient according to the procedure below.		
			Position the patient and put the patient's forehead on the fixture.
			Open the lock and adjust the head support up and down.
			Adjust the head support on the patient's forehead and close the lock.

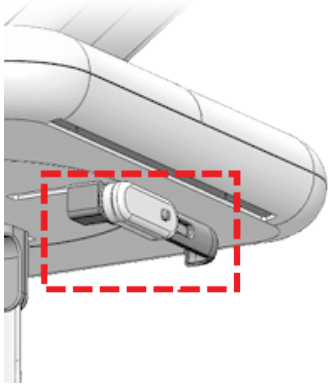
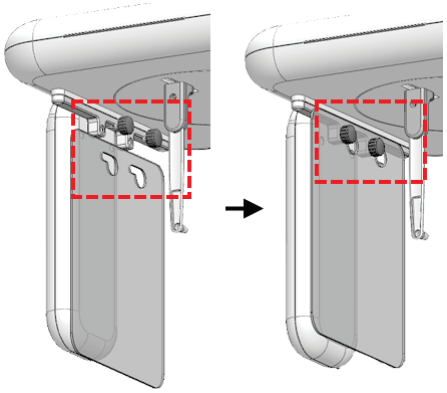
6)		Let the patient be positioned according to open/close the mouth.If patient can't raise their neck, set the height of device by using device set button.
7)		When the position of patient is correct, lead the patient grab the handle.
8)		Set the position of patient by pressing laser button for the patient stands on correctly. Laser points are consists of three lines. You should let the patient be positioned for all lasers correctly to get a good quality of image. Frankfort laser is automatically set based on F.O.V. size.

4.2.5 Cephalo mode(Option)

1)	Select the patient registration and Cephalo mode, and then run OP (Refer to 4.1)
2)	 Set mode & exposure condition on operating OP and click "Confirm" on right-low side, then "Confirm" button turns to "Ready" button, patient position control screen comes out.
3)	 Set the height by using control button after being the patient positioned.
4)	Let the patient positioned according to exposure program after being Ear rod positioned to ear hole of the patient.
5)	LASER Set the position of patient by pressing laser button of device set button while the patient bites the bite correctly.

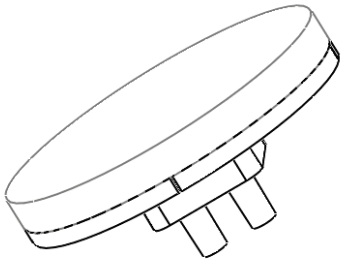
6)	Laser enters horizontally. Control the angle of laser & patient's Frankfort according to exposure program. Frankfort plane is the straight line connecting upper part of an earhole & lower part of eyes. 

4.2.5.1 Cephalo - Carpus(Option)

1)		Place the nasal support as shown.
2)		Position the wrist support plate(Option) as shown and fix it.
3)		Position a wrist in the '+' position on the wrist support plate (Option)
4)	After registering the patient, select Cephalo to tun the OP. The following method is the same as the cephalo imaging acquisition refer to 4.5.2	

4.2.6 ModelScan mode

1)



[For ModelScan mode]

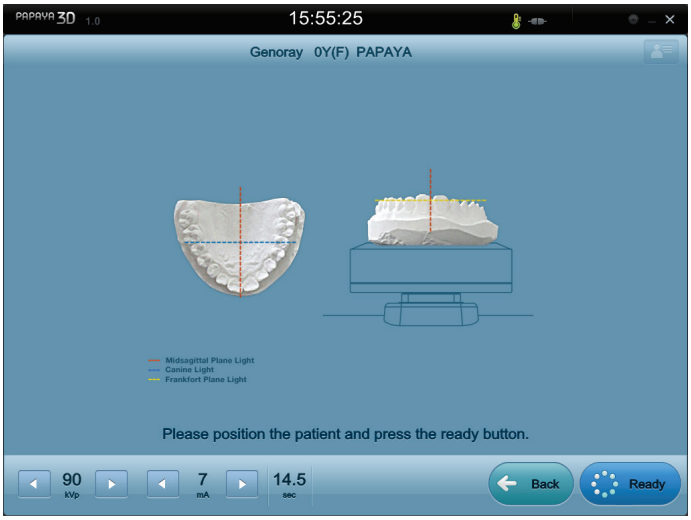
Install the chin-rest for standard mode on device

2)

Set mode & exposure condition on operating OP and click "Confirm" on right-low side, then "Confirm" button turns to "Ready" button, patient position control screen comes out.

Image quality		Low Dose, Normal

3)



Place the Stone or Impression Model in the center of the pedestal after being the patient positioned.

4)

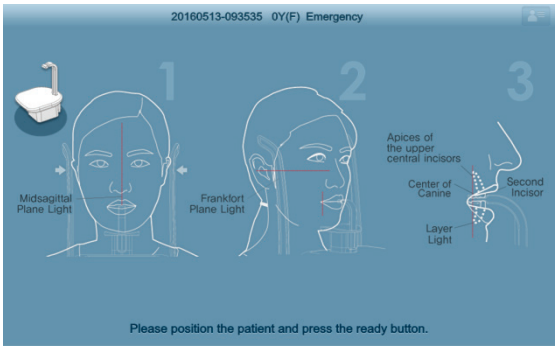
Set the position of patient by pressing laser button of device set button while the patient bites the bite correctly.

Laser points are consists of three lines. You should let the patient be positioned for all lasers correctly to get a good quality of image. Frankfort laser is automatically set based on F.O.V. size.

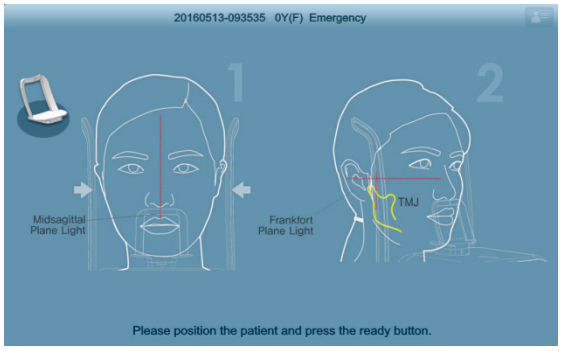
4.3 Image taking

1)

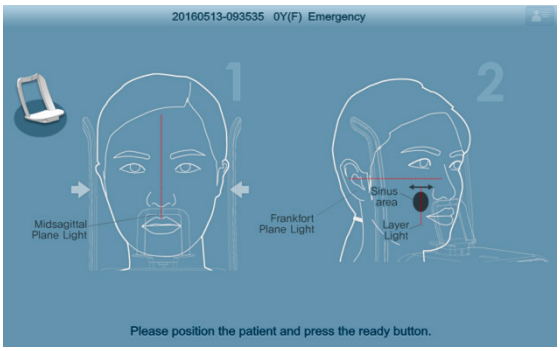
After finishing the fixing the position of patient, press 'Ready' button of right-low part of OP after informing the patient not to move.



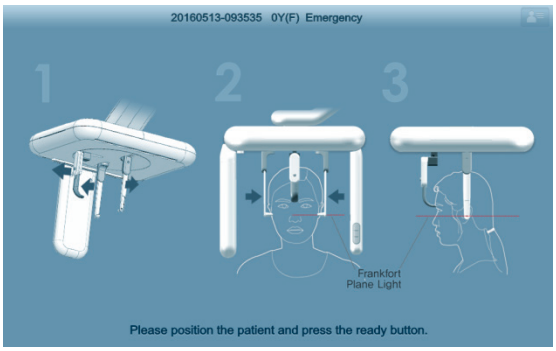
[Panoramic]



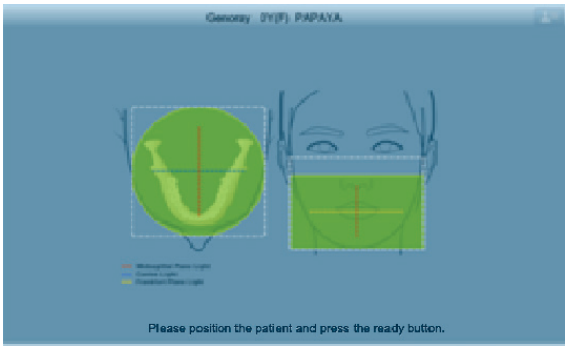
[TMJ]



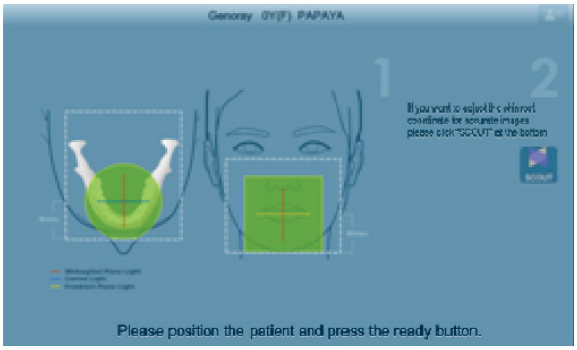
[SINUS]



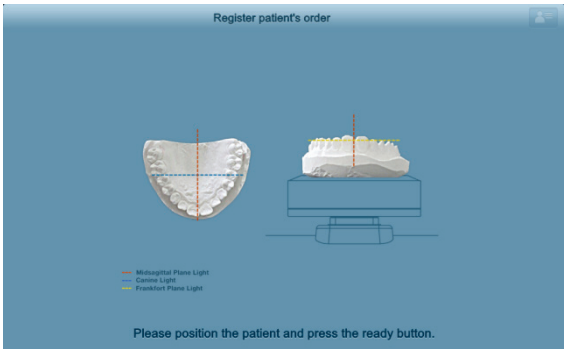
[CEPHALO]



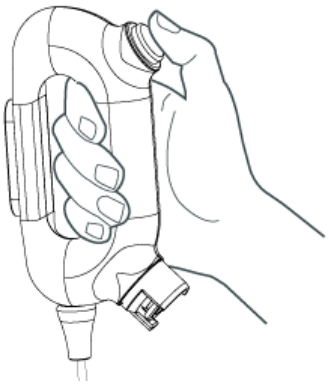
[CT]



[CT : SCOUT]



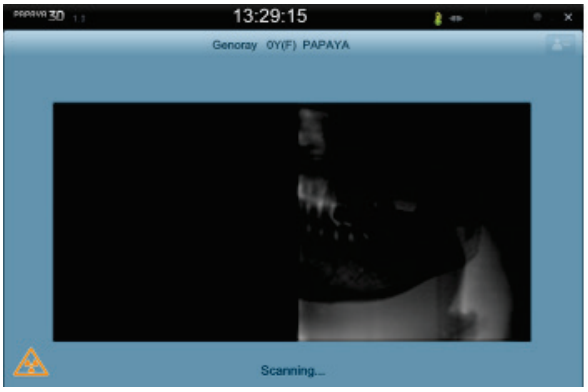
[ModelScan]

2)		After the message for taking a X-ray image from OP, the exposure starts when pressing X-ray shot switch.

3)

When the exposure starts, OP shows X-ray warning message & the image taking, and final image comes out again after the complete.

[Screen shots under preparing OP]

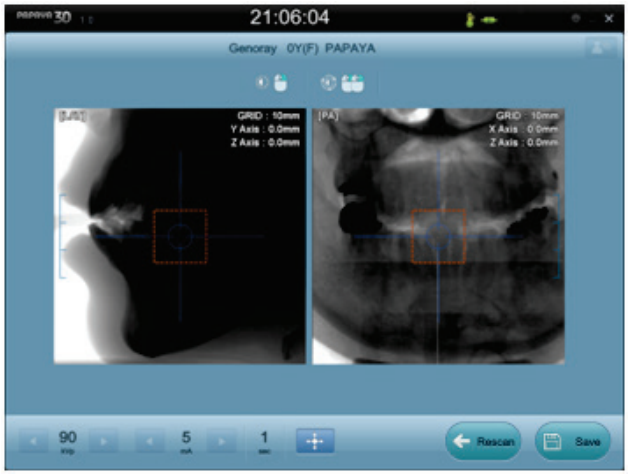


[Panoramic exposure under OP Screen]

.

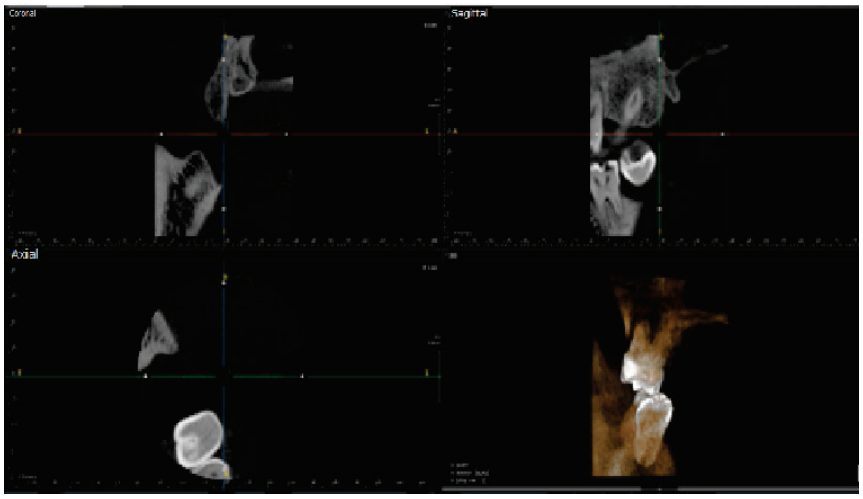
[Panoramic exposure under complete OP Screen]

In case of CT SCOUT, you can have more 74ccurate image after adjusting the chin rest coordinate,



[3D : SCOUT]

4) In case of CT, after exposure exposure, please click "Save". After then please operate TRIANA so that you can check the result of image.

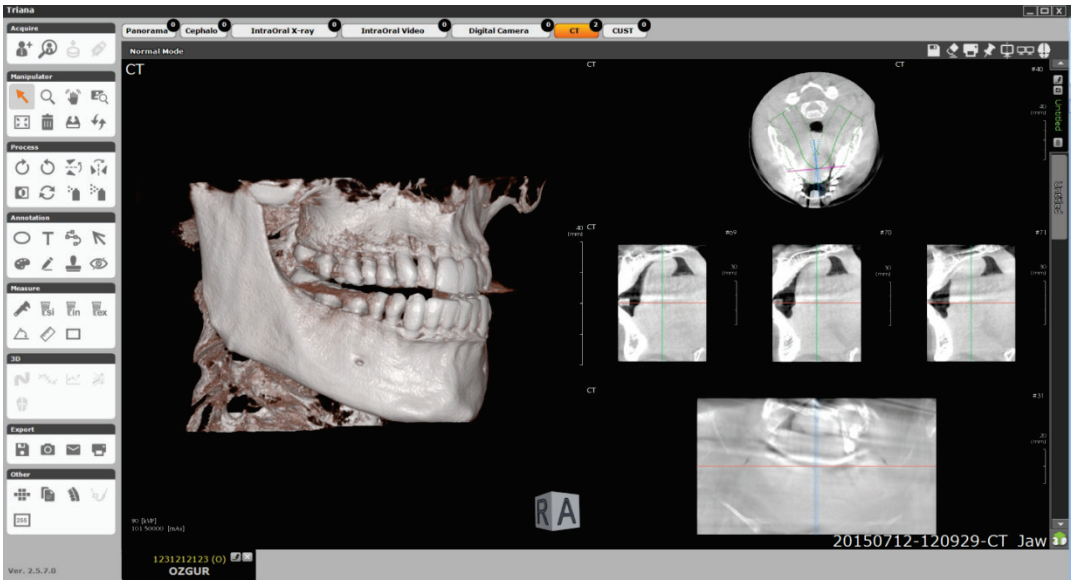


[3D]

CT Scout taken if necessary after jaw coordinate adjustment, click the Move button ' ' click on the bottom, you want to shoot tooth position.

5)

For a CT scan, after exposure is finished, save the taken images taken by clicking on the 'Save' image, check the image results through the TRIANA.



[CT scan confirmed in TRIANA]

4.4 Condition message

No.	Message	Explanation
1)	Please position the patient and press the ready button.	It is displayed at the stage of exposure steps. When you press the "Ready button" to start the preparation of X-ray exposure.
2)	Ready for exposure...	After taking a exposure position, it will be displayed when you press the "Ready button "
3)	Press exposure switch	It is displayed ready for X-ray is complete. When you press the exposure button, and conducted anexposure of x-ray, the acquisition of the image will be appeared.
4)	Scanning...	Image acquisition status is displayed by pressing the exposure button
5)	Return to initial position.	It is displayed when the rotation part is moved to the initial position.
6)	Failure in scan/return process	The above message is displayed when the image acquisition is interrupted.
7)	Image reconstructing	After image capture is complete, will appear in the image processing steps Panoramic / Cephalo / TMJ / SINUS
8)	Image correcting	After image capture is complete, will appear in the image processing steps Panoramic / Cephalo / TMJ / SINUS
9)	Image Processing	After image capture is complete, will appear in the image processing steps Panoramic / Cephalo / TMJ / SINUS
10)	Emergency	The above message is displayed when the Emergency switch is pressed.
11)	Please wait. The machine is still moving.	The above message is displayed when the device is in motion.
12)	Position the ear-post like above illustration.	The above message is displayed when the ear-post is not suit for choice exposure program. Please let postion as shown in image.
13)	Position the nasal like above illustration.	The above message is displayed when the Nasal-support part is not suit for choice exposure program. Please let postion as shown in image.
14)	CT reconstructing...	CT reconstructing process on the screen.

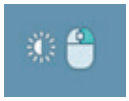
4.5 Image Control

After image exposure finishes and on screen, image is displayed and before push "save" button and can do image control

☐ Common

Function	Control method	Explanation
	Drag mouse's left button	Move image within window (UP/DOWN/left/right)
	Drag mouse's right button	Control Brightness
	Drag mouse's both left and right	View enlarge or minimize
	Double click mouse's left button	Re-size image with size of window
	Double click mouse's right button	initialize image to before control brightness
	Move mouse wheel to up or down	Multi-focus with the previous / next video views

☐ CT mode

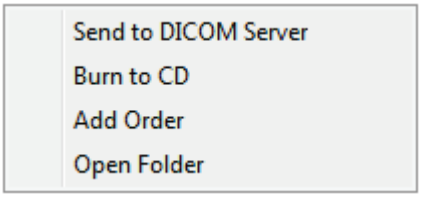
Function	Control method	Explanation
	Mouse wheel UP/DOWN	Cross next / previous video in the Video View
	Drag right mouse button	Control Brightness
	Double click right mouse button	Reset the image before control brightness.

4.6 TWAIN interface

If user's program supports Twain interface, and by using TWAIN data source in which is named, "PAPAYA 3D" (TWAIN Version 2.1) and can send image to user's program. Sending methods are supported with Native Mode Transfer and Buffered Memoray Mode Transfer.

- Connect TWAIN session by choosing "PAPAYA 3D" among TWIN data source whithin user's program
- At user's program, the command of Acquire and send this command, and progress on OP's full screen mode.
- From contents of 3.2 to 3.6, depending upon exposure mode and choose exposure mode and control patient position, and then try exposure of X-ray.
- After exposure steps are finished normally and click "save" button and send user's program called, "PAPAYA 3D"
- When the transfer is complete, OP screen automatically closes, and then exit the TWAIN session.

4.7 OP additional function



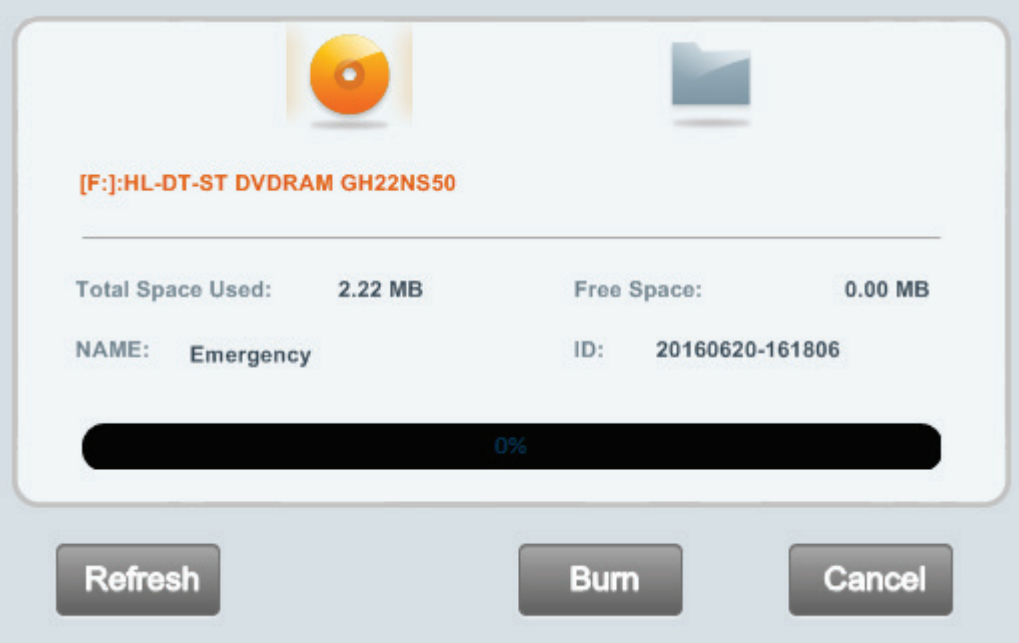
OP enables burning CD, sending to DICOM server, registering additional command, opening of patient date folder. Burning CD and sending of DICOM server function is able for patient who completed taking exposure. On order list window, clicking mouse's right button and by choosing patient and pop-up menu appears for choosing additional function.

4.7.1 Sending to DICOM server

1) At pop-up menu, by choosing send, and this function allows to pre-set to send image to DICOM server.
2) The DICOM server information is written on 2.9.3 and on DICOM option tab's lower left side and set on Storage Server.
3) By clicking "Insert Item" button, and input information window appears and input AETitle, IP, Port, and Timeout and click "Insert" button.
4) At Storage Server's Preset list, and choose server in which will be sent and finish job by clicking "Save" button.

4.7.2 Burning CD

After taking exposured image and save them by using CD-ROM like media storage device or hard disk. On pop-up menu, choose "Save to CD" and progress CD burning window.



The process of burning a CD is as follows:

1) For media device, select the device you want to save the image on the right device list.
2) Check the Total space used Free space and then click on the 'Burn' button.
3) When the burning is complete, exit by pressing 'Close' button
4) If you store on your hard disk or USB to select the path where you want to save, press the button (), and then run the burning.
5) CDSee image viewer program can be stored together with the video.
6) The media device is connected but can not select the device because it did not appear in the device list, please pressing the refresh button to update the list of devices.

On same path inside of CDSee folder, progress CDSee.exe and view saved image.

4.7.3 Register addition order

An additional feature allows the patient to a patient already registered by selecting only the program without taking the basic input personal information again when the patient is registered in the list of patients require additional exposure.

1) If you add one shot of patients completed one shot, and then go to the tab completion, the patient record by clicking the right mouse button to click the ‘Add Patient’ button.
2) If you select more patients will be enrolled patients with basic information for the selected patient status update window will run.
3) If you choose to take the program and click on the 'Register' button to add a spell on the patient list.

4.7.4 Opening of patient’s folder

When choosing opening of folder, search window is opened by starting from where the images are in saved folder.

5. Precautions after using, Methods of storage and maintain

5.1 Cleaning and Method

1) Turn OFF the power switch and disconnect the power plug after use
2) Please grasp and pull the plug, don't pull the wire only.
3) Patient contact portion and the equipment, accessories, please cleaning and disinfection so as not to interfere with use

- Cover of equipment: Please wipe gently with a sponge or damp cloth
- Contacted part by patients : You clean with gauze or cotton which has been moistened with rubbing alcohol or high-pressure sterilization of up to 135 ℃:
- Please do not use disinfectant or detergent a corrosive.
- Please note that no liquid drips into the device at the time of cleaning.

Clean the chin rest and bite block with ethanol and wipe with a dry towel before the next patient.

5.2 Storage

1) Do not install the equipment on the place where is wetted.
2) Do not install it in the place there is possibility of causing adverse effects due to air containing atmospheric pressure, temperature, humidity, ventilation, dust, salt, and sulfur content.
3) The eqipment should keep safety state without tilt, vibration, and etc. (including during transport)
4) Please do not install it in the place of the occurrence of gas and the storage location of the chemical

5.3 Maintain

1) User has to check the machine regularly for performance.
   Please refer to "Appendix 2.Maintenance".
2) If you want to re-use equipment that has not been used for a long time, please use after it was confirmed that it is working properly for safety. Please be inspected by qualified service center headquarters.

5.4 Move

1) Before moving this product, especially taking the stairs, please contact us
2) For your safe, at least three people will need to move this product.
3) Please check your power supply is acceptable with this product.
4) After moving, If you find any problems, please cotact us as soon as you can. Some of boards might be disconnected or squeezed during moving the machine.

6. Product contents

6.1 Classification and complied standards

6.1.1 Classification

Electrical classification	Class I, Type B
Item	Diagnostic computed tomography limited view field X-ray system

6.1.2 Complied standards

- IEC/EN 60601-1
- IEC/EN 60601-1-2
- IEC/EN 60601-1-3
- IEC/EN 60601-1-6
- IEC/EN 60601-2-63

6.2 Power and other information

1) Input

Input Power Supply	100-240 V~
Power Capacity	2.4 kVA(Momentary) 180 VA(Stand-by) 450 VA(Nominal)
Frequency	50/60 Hz
Apparent maximum allowed (impedance)	≤0.2 Ω

2) Total filtration

Inherent filtration	0.8mmAl
Additional filtration	2.0mmAl

3) Etc

SID	Pano : 568 mm CT : 591 mm Ceph: 1750 mm
SSD	Pano: 276 mm CT : 276 mm Ceph: 1420 mm
Maximum tube current	12 mA
Maximum voltage	90 kV
Maximun kV, mA	90 kV, 12 mA
Overcurrent interdediatespinning frame character	Fuse 20A
Ground	B type ground

4) Environmental conditions

While using	
- Temperature	10 ℃ to 35℃
- Humidity	30 % to 75 %RH
- Air pressure	800 to 1060 hPa
While storage	
- Temperature	- 20 ℃ to 55 ℃ (Detector: - 15 ℃ to 55 ℃)
- Humidity	10 % to 90 %RH
- Air pressure	500 to 1060 hPa

6.3 Specifications of main part
6.3.1 X-ray source assembly

1) Input

Constant value	Single phase
Frequency	50/60Hz
Voltage	100-240 V~±10%
Supply capacity	2.4 kVA

2) Output

kV range	60kV-90kV
mA range	4-12mA
Radiation irradiation time	Pano: max 17sec CEPH: max 15.5sec CT : max 15sec

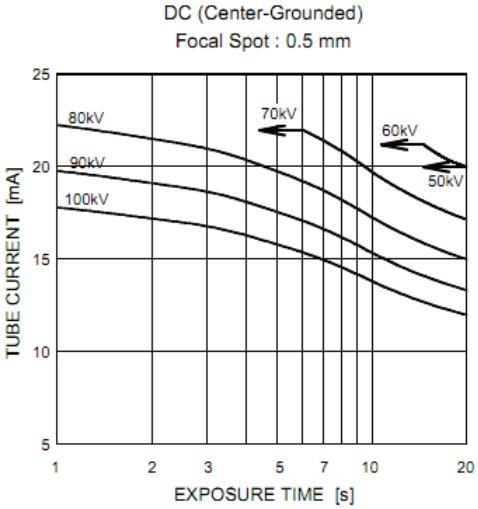
3) Dimension and weight

Dimension	246(W) X 254(H) X 125(D)
Weight	about 10Kg

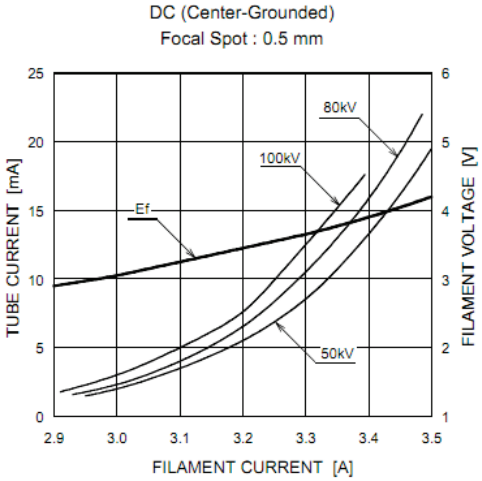
6.3.2 X-ray tube

MODEL	D-054SB (Toshiba)
1) Electrical data	
Circuit	DC(CENTER GROUNDED)
Operating voltage of the tube	100kV
Focus	0.5mm
Positive input voltageat 0.1S(DC)	1750 W
2) Mechanical Data	
Dimensions	Overall length: 146mm Maximumtube diameter: 58mm
Type	Stationary(Fixed type)
Target Angle	5°
Target material	Tungsten
Inherent Filtration	0.8 mm Al
Cooling Method	Oil cooling
Cooling Time	20 min
3) Thermal Characteristics	
Anode Heat Storage Capacity	35kJ
Maximum Anode Cooling rate	250 W

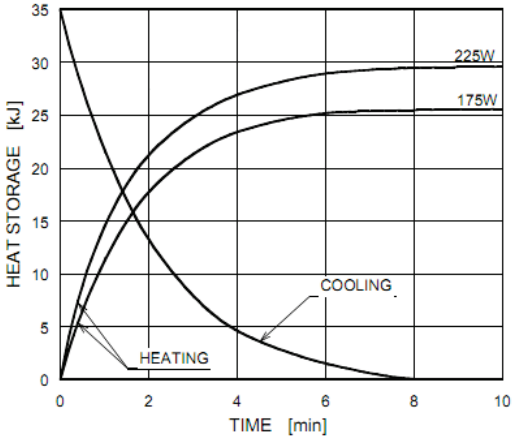
1) Maximum Rating Charts (Absolute maximum rating charts)



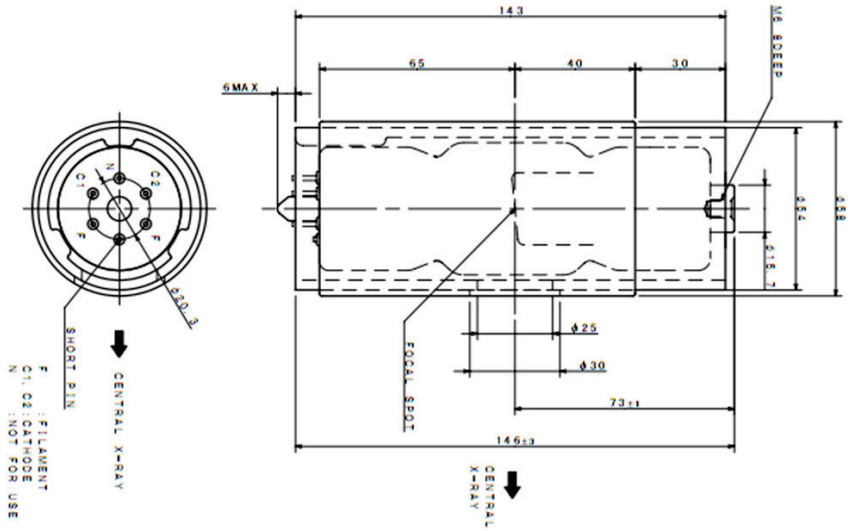
2) Emission Characteristics



3) Anode Thermal Characteristics



4) D-054SB dimension (measurment: mm)



6.3.3 Detector

☐ DualRay-S (dedicated for CT)

Part	Details	Specifications
Sensor Chip	Sensor Material	CMOS
	Pixel Size (um)	100 um
	Active Area (mm)	130 x 128
	Dynamic Range (dB)	≥ 72
	DQE(70kV,0lp/mm)	≥ 0.7
	MTF(1lp/mm)	≥ 0.5
Electronics	Power Supply Requirement	Digital +5V/1A, Analog +5V/1A
	Command I/O	3 TTL trigger
	Data I/O	GigE
	Frame Rate (fps)	30
	Data Bits Per Pixel	12 bit
Mechanical Dimension	Size (mm)	167(W)*150(H)*38(D)
	Weight (g)	1300

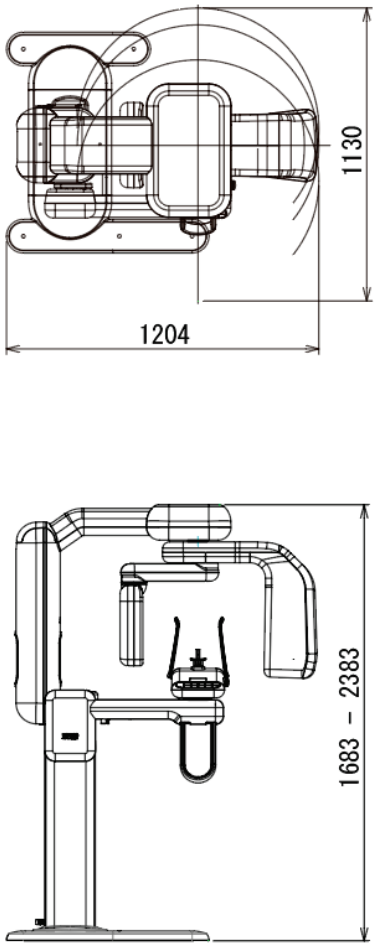
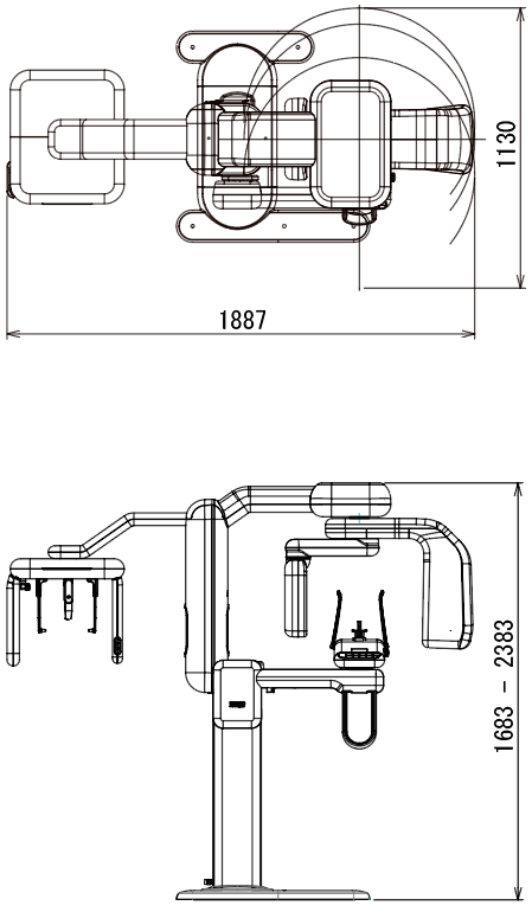
☐ Extor-P(for Panoramic)

Part	Details	Specifications
Sensor Chip	Sensor Material	CMOS
	Pixel Size (um)	75 um
	Active Area (mm)	150 x 6.45
	Dynamic Range (dB)	≥ 72
	DQE(70kV,0lp/mm)	≥ 0.7
	MTF(1lp/mm)	≥ 0.6
Electronics	Power Supply Requirement	Digital +5 V/1 A, Analog +5 V/1 A
	Command I/O	3 TTL trigger
	Data I/O	GigE
	Frame Rate (fps)	200
	Data Bits Per Pixel	12 bit
Mechanical Dimension	Size (mm)	73(W)*168(H)*21.7(D)
	Weight (g)	380

☐ Extor-C(For Cephalo)

Part	Details	Specifications
Sensor Chip	Sensor Material	CMOS
	Pixel Size (um)	75 um
	Active Area (mm)	225 x 6.45
	Dynamic Range (dB)	≥ 72
	DQE(70kV,0lp/mm)	≥ 0.7
	MTF(1lp/mm)	≥ 0.6
Electronics	Power Supply Requirement	Digital +5 V/1 A, Analog +5 V/1 A
	Command I/O	3 TTL trigger
	Data I/O	GigE
	Frame Rate (fps)	125
	Data Bits Per Pixel	12 bit
Mechanical Dimension	Size (mm)	73(W)*255(H)*21.7(D)s
	Weight (g)	550

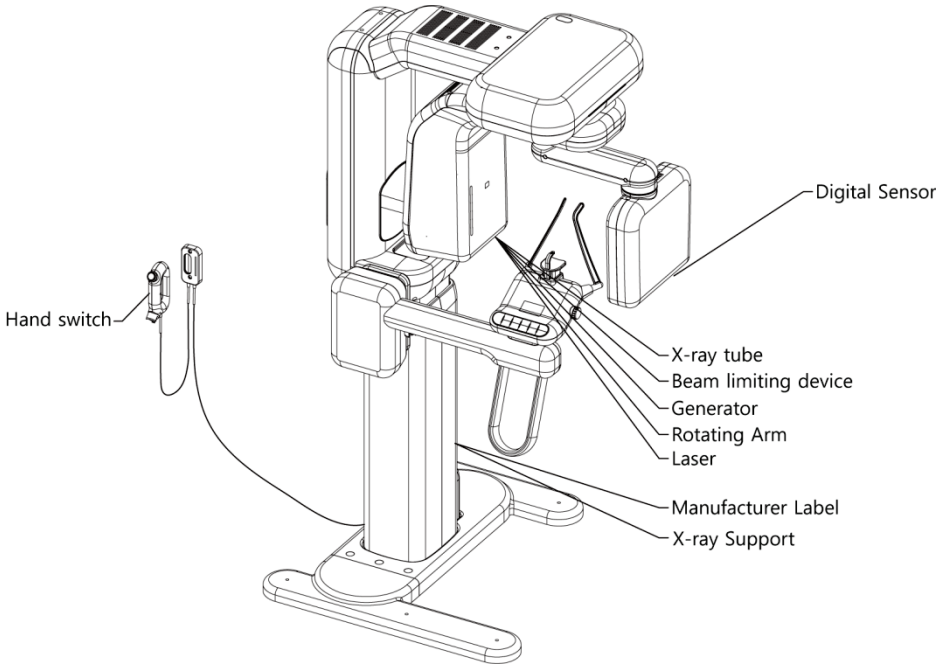
6.4 Dimensions and Weights

<table>
<tr>
<td> 
</td>
<td> 
</td>
</tr>
<tr>
<td>PAPAYA 3D Dimension
- Weight: 145 kg ± 5%
- Dimensions: 1204 x 1130 x 2383 (unit : mm)</td>
<td>PAPAYA 3D PLUS Dimension
- Weight : 160 kg ± 5%
- Dimensions: 1887 x 1130 x 2383 (unit : mm)</td>
</tr>
</table>

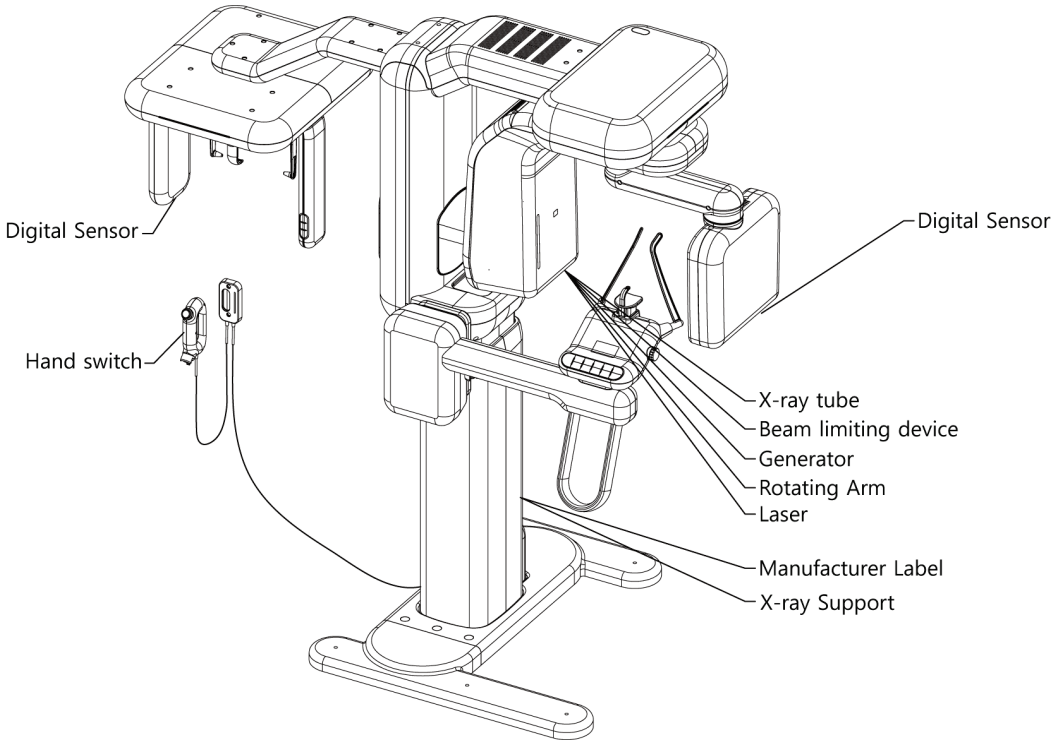
6.5 Labeling

Please check the labels and the manual before operating machine.

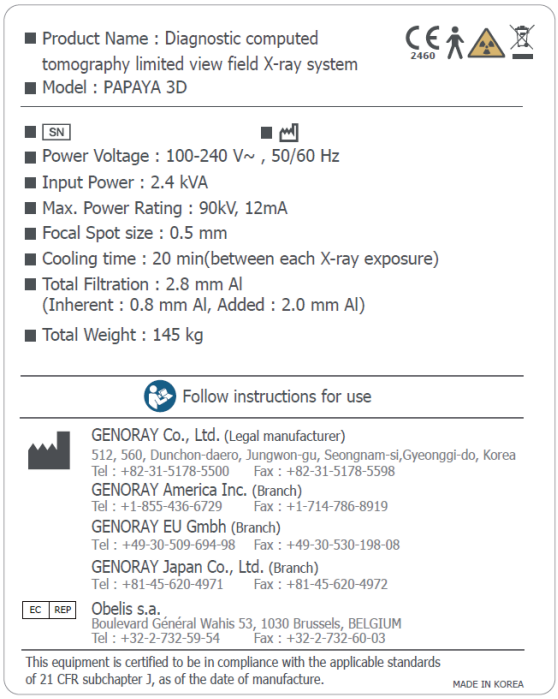
☐ **PAPAYA 3D**

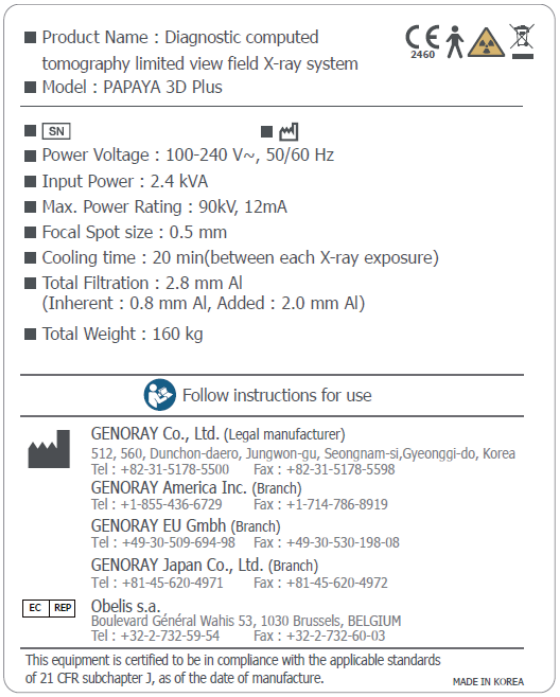


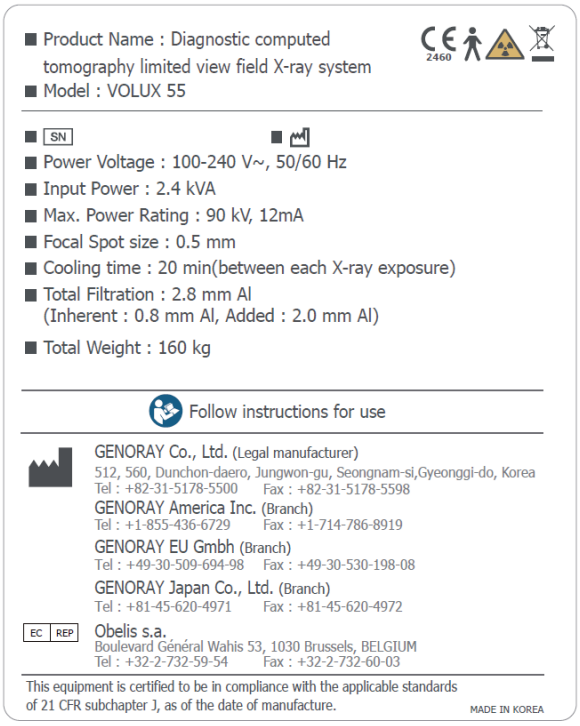
☐ **PAPAYA 3D Plus**



6.5.1 Manufacturer labels







6.5.2 Product label

X-ray Generator

- Model : DP-2G
- Manufacturer : GENORAY Co., Ltd.
- Max. Power Rating : 90 kV, 12 mA
- Serial No. :

X-ray Tube

- Model: D-054SB
- Manufacturer : Canon(Japan)
- Maximum Tube Voltage : 100 kV
- Inherent Filtration : 0.8 mm Al
- Focal Size : 0.5 mm
- Serial No. :

X-ray Tube Support

- Model : DP-2S
- Manufacturer : GENORAY CO., Ltd.
- Serial No. :

Rotating Arm

- Model : DC-2RA
- Manufacturer : GENORAY Co., Ltd.
- Rotating Angle : 410.6°
- Serial No. :

X-ray Collimator

- Model : DC-2BL
- Manufacturer : GENORAY Co., Ltd.
- Filtration : 2.0 mm Al
- Serial No. :

Detector

- Model : EXTOR-P
- Manufacturer : GENORAY Co., Ltd.
- Active area : 150 X 6.45 mm
- Serial No. :

Detector

- Model : EXTOR-C
- Manufacturer : GENORAY Co., Ltd.
- Active area : 225 X 6.45 mm
- Serial No. :

Detector

- Model : DualRay-S
- Manufacturer : GENORAY Co., Ltd.
- Active area : 130 X 128 mm
- Serial No. :

Hand Switch

- Model : DP-HS

Appendix 1.Error message&temporary countermeasure

An error message is displayed when the X-ray control device execution is difficult with the normal function due to a problem with using the product. Check the message, please take appropriate action. If the same symptom is

☐ Error message of interlocking

1)	Code Number	CODE-E001
	Error Message	The value of kV is low.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
2)	Code Number	CODE-E002
	Error Message	The value of kV is high.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
3)	Code Number	CODE-E003
	Error Message	The value of mA is low.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
4)	Code Number	CODE-E004
	Error Message	The value of mA is high.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
5)	Code Number	CODE-E005
	Error Message	Imbalace of feedback 'mA'(OCP)
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
6)	Code Number	CODE-E006
	Error Message	Imbalace of feedback 'kV'(OVP)
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
7)	Code Number	CODE-E007
	Error Message	The outside temperature of Tank is high.
	Corrective Measure	- Turn off the power and power on after 1 hour.

8)	Code Number	CODE-E008
	Error Message	The outside temperature of Tank is high.
	Corrective Measure	- Turn off the power and power on after 1 hour.
9)	Code Number	CODE-E009
	Error Message	During exposure, the exposure switches were released.
	Corrective Measure	- If user don't release exposure switch, check the symptom after reboot. ※ If the same symptom occurs, apply a service request.
10)	Code Number	CODE-E010
	Error Message	Overload at the axis of rotation of the Gantry.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
11)	Code Number	CODE-E011
	Error Message	Overload at the Y axis of rotation of the Gantry.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
12)	Code Number	CODE-E012
	Error Message	Overload at the motion of Ceph sensor.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
13)	Code Number	CODE-E013
	Error Message	Overload at the motion of the secondcollimator.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
14)	Code Number	CODE-E014
	Error Message	Overload at the motion of collimator.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
15)	Code Number	CODE-E015
	Error Message	The FPGA program has not been downloaded
	Corrective Measure	- Apply for service.
16)	Code Number	CODE-E016
	Error Message	The exposure button is pressed continuously.
	Corrective Measure	- Apply for service.

17)	CODE-E004	CODE-E017
	Error Message	There is no communication response from the Lift Board.
	Corrective Measure	- Apply for service.
18)	Code Number	CODE-E018
	Error Message	There is no X-ray output response.
	Corrective Measure	- Apply for service.
19)	Code Number	CODE-E019
	Error Message	The X-ray output signal is different.
	Corrective Measure	- Apply for service.
20)	Code Number	CODE-E020
	Error Message	There is no SD card.
	Corrective Measure	- Apply for service.
21)	Code Number	CODE-E021
	Error Message	No voice files on SD card.
	Corrective Measure	- Apply for service.
22)	Code Number	CODE-E022
	Error Message	Rotation position for rotation is stopped.
	Corrective Measure	- confirming the collision with the patient, please be sure to retake it. ※ If the rotation is stopped without a collision, apply for service.
23)	Code Number	CODE-E023
	Error Message	The exposure program is not correct(Rotation axis)
	Corrective Measure	- Apply for service.
24)	Code Number	CODE-E024
	Error Message	The exposure program is not correct (Y axis)
	Corrective Measure	Apply for service.
25)	Code Number	CODE-E025
	Error Message	The exposure program is not correct(Ceph sensor axis)
	Corrective Measure	- Apply for service.
26)	Code Number	CODE-E026
	Error Message	The exposure program is not correct(Second Ceph sensor axis)
	Corrective Measure	- Apply for service.

27)	Code Number	CODE-E027
	Error Message	The exposure program is not correct(First Collimator sensor axis)
	Corrective Measure	- Apply for service.
28)	Code Number	CODE-E028
	Error Message	Overload at chin rest X axis movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
29)	Code Number	CODE-E029
	Error Message	Overload at chin rest Z axis movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
30)	Code Number	CODE-E030
	Error Message	Overload at the upper collimator movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
31)	Code Number	CODE-E031
	Error Message	Overload at the lower collimator movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
32)	Code Number	CODE-E032
	Error Message	Overload at left collimator movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
33)	Code Number	CODE-E033
	Error Message	Overload at right collimator movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
34)	Code Number	CODE-E034
	Error Message	Overload at the sensor rotation axis.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
35)	Code Number	CODE-E035
	Error Message	Overload at the FR laser movement.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.

36)	Code Number	CODE-E036
	Error Message	The CT sensor vertical movement has been overloaded.
	Corrective Measure	- After rebooting the equipment, check the symptoms. ※ If the same symptom occurs, apply a service request.
37)	Code Number	CODE-E037
	Error Message	The door of the shield room is opened.
	Corrective Measure	- Close the door of the shield room.
38)	Code Number	CODE-E038
	Error Message	The firmware version is incompatible.
	Corrective Measure	- Apply for service.
39)	Code Number	CODE-E039
	Error Message	During initialisation of equipment, rotation of rotation part was aborted.
	Corrective Measure	- After checking the collision with an object, switch off and on the equipment. ※ If the same symptom occurs, apply a service request.

☐ Error message

1)	Code Number	CODE-W001
	Error Message	The door of the shield room is opened.
	Corrective Measure	- Close the door of the shield room. ※ If the shield room door is opened during exposure.
2)	Code Number	CODE-W002
	Error Message	Adjustment of motor value for chin rest board is required. The chin rest X axis motor value exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.
3)	Code Number	CODE-W002
	Error Message	Adjustment of motor value for chin rest board is required. The chin rest Z axis motor value exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.
4)	Code Number	CODE-W003
	Error Message	Adjustment of motor value for collimator board is required. The motor value of upper collimator exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.
5)	Code Number	CODE-W003
	Error Message	Adjustment of motor value for collimator board is required. The motor value of down side collimator exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.
6)	Code Number	CODE-W003
	Error Message	Adjustment of motor value for collimator board is required. The motor value of left side collimator exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.
7)	Code Number	CODE-W003
	Error Message	Adjustment of motor value for collimator board is required. The motor value of right side collimator exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.

8)	Code Number	CODE-W004
	Error Message	Adjustment of the vertical motor value for detector is required. The vertical motor value of detector exceeded the limit.
	Corrective Measure	- Make sure symptom after reboot. ※ If the same symptom occurs, apply a service request.
9)	Code Number	CODE-W005
	Error Message	You need to set up a branch
	Corrective Measure	- Check the setting menu. (General->SCD)
10)	Code Number	CODE-W006
	Error Message	Latitude and longitude must be set.
	Corrective Measure	- Check the setting menu. (General->SCD)

☐ Software Error Message

1)	Code Number	CODE-S001
	Error Message	Unable to allocate memory for image receiving.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
2)	Code Number	CODE-S002
	Error Message	Sensor can not be prepared.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
3)	Code Number	CODE-S003
	Error Message	Patient is not registered.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
4)	Code Number	CODE-S004
	Error Message	Image receiving is interrupted.
	Corrective Measure	- Check the below articles. Windows Update Firewall, vaccine, or network status(1G) ※ If the same symptom occurs, apply a service request.
5)	Code Number	CODE-S005
	Error Message	Registration of Film Mount failed.
	Corrective Measure	- Check the settings menu. (DB Server->Data Folder Information)
6)	Code Number	CODE-S006
	Error Message	Calibration file does not exist.
	Corrective Measure	- Please check the Calibration data file or the sensor serial number. ※ If the same symptom occurs, apply a service request.
7)	Code Number	CODE-S007
	Error Message	Unable to connect to ' HIVE ' service
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
8)	Code Number	CODE-S008
	Error Message	TDI data error.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.

9)	Code Number	CODE-S009
	Error Message	No exposure information file has been created.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
10)	Code Number	CODE-S010
	Error Message	Image receiving error(missing data).
	Corrective Measure	- The network state is unstable or the PC state is unstable. Check the network connection status, and if normal, please reboot the PC (1 Gbps). ※ If the same symptom occurs, apply a service request.
11)	Code Number	CODE-S011
	Error Message	Only the first image is reconstructed.
	Corrective Measure	- Check the exposure button. ※ If the same symptom occurs, apply a service request.
12)	Code Number	CODE-S012
	Error Message	Network status is unstable.
	Corrective Measure	- Check the network connection status.
13)	Code Number	CODE-S013
	Error Message	Unsupported graphics card.
	Corrective Measure	- Check graphics card specifications
14)	Code Number	CODE-S014
	Error Message	Sensor sleep mode : ON
	Corrective Measure	Sensor is not ready yet. Retake an exposure. ※ If the same symptom occurs, apply a service request.
15)	Code Number	CODE-S015
	Error Message	Not enough Z drive capacity.
	Corrective Measure	- Confrim whether to install the Z drive. - Check the installed Z drive capacity. ※ If the same symptom occurs, apply a service request.
16)	Code Number	CODE-S016
	Error Message	There are no GCP files.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.

17)	Code Number	CODE- S017
	Error Message	Shared folder error.
	Corrective Measure	- Check the settings menu. (DB Server->Data Folder Information)
18)	Code Number	CODE- S018
	Error Message	Failed to create DCM file.
	Corrective Measure	- Check ' DCM file path ' in the log file. ※ If the same symptom occurs, apply a service request.
19)	Code Number	CODE- S019
	Error Message	Unable to connect to the worklist server.
	Corrective Measure	- Check the following articles. → Set worklist service. (DICOM->MWL Server) → Set worklist service. ※ If the same symptom occurs, apply a service request.
20)	Code Number	CODE- S020
	Error Message	Unable to find'CT ExposureProgram custom preset' file.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
21)	Code Number	CODE- S021
	Error Message	Angle of detector rotation value is not correct.
	Corrective Measure	- Adjustment the angle of panorama detector rotation value is required. (Please refer to Technical manual.) ※ If the same symptom occurs, apply a service request.
22)	Code Number	CODE- S022
	Error Message	Angle of detector rotation value is not correct.
	Corrective Measure	- Adjustment the angle of CT detector rotation value is required. (Please refer to Technical manual.) ※ If the same symptom occurs, apply a service request.
23)	Code Number	CODE-S023
	Error Message	Unable to initialize folder associated with exposure.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.

24)	Code Number	CODE- S024
	Error Message	Unable to connect to detector
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
25)	Code Number	CODE- S025
	Error Message	Image receiving buffer error
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
26)	Code Number	CODE- S026
	Error Message	Unable to detector bank
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
27)	Code Number	CODE- S027
	Error Message	Unable to access file
	Corrective Measure	- Check 'tif file path' in the log file. ※ If the same symptom occurs, apply a service request.
28)	Code Number	CODE- S028
	Error Message	Exposure setting is not correct.
	Corrective Measure	- Check the following articles in the log file. → GEP file path. → Select detector(Pano/Ceph). ※ If the same symptom occurs, apply a service request.
29)	Code Number	CODE- S029
	Error Message	'exposure_program.ini' file not found.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.
30)	Code Number	CODE- S030
	Error Message	There is no exposure data information.
	Corrective Measure	- Please retake an exposure. ※ If the same symptom occurs, apply a service request.
31)	Code Number	CODE- S031
	Error Message	Unable to find TWAIN driver.
	Corrective Measure	- Please rerun the program. ※ If the same symptom occurs, apply a service request.

Appendix 2.Maintance

The user needs to check that all safe related the equipment operation before using it.
Machine and parts should be checked by routine maintenance.

INSPECTION PERIOD	INSPECTION LIST	INSPECTOR	RESULT					
			1	2	3	4	5	Remarks
EVERY DAY	On / Off Switch	User						
	wire connection							
	Turn off after using							
	Equipment cleanliness							
	disinfection							
	On / Off Switch							
	Up/Down, Right/Left buttons							
	Exposure Hand Switch							
	Patient Registration							
	Image Save and Load							
EVERY WEEK	Temperature& Humidity							
	Emergency Button							
WHEN THE MACHINE HAS NOT BEING USED FOR 6 MONTH	Tube Voltage Accuracy Test	Manufacturer						
	Tube Current Accuracy Test							
	Exposure Dose to the patient							
	Detector calibration							

In order to maintain the quality of the image and the equipment, please go to test and inspection periodically.

Please have a periodic inspection every three years from the date of purchase for normal use of this product.

Appendix 3. X-ray exposure table & DAP(Dose area product)

The following DAP table indicates the average measured value. Some output errors or measurement errors may occur depending on the machine, therefore the acceptable error range is 20%. Also, image quality option is measured date by normal mode

1) Standard Panoramic mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	75	12	12	79.2	8.11
Middle	70	10	12	57.6	5.90
S	68	8	12	43.01	4.40
Child	65	6	12	25.1	3.09

2) Orthogonal Panoramic mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	75	12	12	79.2	8.11
Male	70	10	12	57.6	5.90
Female	68	8	12	43.01	4.40
Child	65	6	12	25.1	3.09

3) Bitewing Panoramic mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	75	12	10.3	56.35	5.77
Male	70	10	10.3	40.98	4.19
Female	68	8	10.3	30.6	3.13
Child	65	6	10.3	21.51	2.20

* For the patient type, please refer to the last exposure chart below;

TMJ mode

1) Lateral TMJ with one side

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	72	12	4	24.38	2.50
Male	70	10	4	19.2	1.97
Female	68	8	4	14.34	1.47
Child	65	6	4	8.37	0.86

2) PA TMJ mode with one side

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	78	12	4	28.99	2.97
Male	75	10	4	22	2.25
Female	70	8	4	15.36	1.57
Child	66	7	4	9.81	1.00

Sinus mode

1) Lateral Sinus Midsagittal, Lateral Sinus mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	72	12	5	30.48	3.12
Male	70	10	5	24	2.46
Female	68	8	5	17.92	1.83
Child	65	6	5	10.46	1.07

2) PA Sinus

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	75	12	9	59.4	6.08
Male	72	10	9	45.72	4.68
Female	70	8	9	34.56	3.54
Child	68	7	9	23.76	2.43

Cephalo mode

[Extor-C detector]

1) PA, AP Cephalometric / Water's View / SMV (Submento vertex) mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	90	12	8	11.71	0.8
Male	88	11	8	10.26	0.7
Female	86	10	8	8.89	0.61
Child	84	9	8	6.32	0.43

2) Lateral mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	85	12	8	10.41	0.71
Male	83	12	8	9.89	0.68
Female	81	10	8	7.8	0.53
Child	80	9	8	5.67	0.39

3) Carpus mode

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	70	7	8	4.02	0.27
Male	67	6	8	3.2	0.22
Female	63	5	8	2.18	0.15
Child	60	4	8	1.28	0.09

CT mode

1) CT Tooth mode (Default mode: High Res.)

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	90	8	7.7	355.78	6.83
Male	90	7	7.7	315.81	6.06
Female	88	7	7.7	298.64	5.73
Child (Φ 35x40)	85	7	7.7	272.89	5.24

2) CT Teeth mode (Default mode: Normal)

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	90	5	7.7	550.7	3.30
Male	90	4	7.7	440.66	2.64
Female	88	4	7.7	417	2.50
Child (@80x75)	85	4	7.7	381.51	2.29

3) CT Jaw mode (Default mode: Normal)

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	90	5	14.5	1178.85	7.07
Male	90	4	14.5	943.18	5.66
Female	88	4	14.5	891.28	5.35
Child	85	4	14.5	813.44	4.88

4) CT Face mode Default mode: Normal)

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	90	5	29	2357.7	14.15
Male	90	4	29	1886.36	11.32
Female	88	4	29	1782.56	10.70
Child	85	4	29	1626.88	9.76

5) CT TMJ mode (Default mode: Normal)

* Patient type	Recommended X-ray exposure			DAP (mGy*cm²)	Dose (mGy)
	kVp	mA	Exposure Time(sec)		
Big	90	5	14.5	1178.85	7.07
Male	90	4	14.5	943.18	5.66
Female	88	4	14.5	891.28	5.35
Child	85	4	14.5	813.44	4.88

* See the table below for the Patient type.

Age Group		PAPAYA 3D Plus's Standard	
Child		≤ 12	-
Adult	Male	≥ 13	-
	Female		-
	Big		≥ 600mm, head circumference

- A child is defined as a person who is younger than 12 years old.
- If the patient's head is bigger than 600mm circumference, you can select the Big setting for exposure.

- A child is defined as a person who is younger than 12 years old.
- If the patient's head is bigger than 600mm circumference, you can select the Big setting for exposure.

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