Notice

Congratulations on your purchase of the CS 9300C. Thank you for your confidence in our products and we will do all in our power to ensure your complete satisfaction.

The User Guide for the CS 9300C includes information on the cephalometric features. For the panoramic or the 3D features, see the CS 9300 (SM748) User Guide. We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system. The CS 9300C is intended to produce two-dimensional and three-dimensional digital x-ray images of the dento-maxillo-facial and ENT (Ear, Nose and Throat) areas to be used at the direction of healthcare professionals as diagnostic support for pediatric and adult patients. In addition, the CS 9300C is a system that is also intended to produce cephalometric images. This includes imaging the hand and wrist to obtain the carpus image for growth and maturity assessment.

WARNING: We recommend that you consult the “Safety, Regulatory and the Technical Specification User Guide” before using the CS 9300C.

WARNING: Do not use cone beam imaging for routine or screening examinations. Consider using other diagnostic tools. You must justify that the imaging method that you use to examine each patient demonstrates that the benefit outweights the risks.

The information contained in this Guide may be subject to modification without notice, justification or notification to the persons concerned.

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The US Federal law restricts this device to sale by or on the order of a physician.

This document is originally written in English.

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Chapter 1
About This Guide

Conventions in this Guide

The following special messages emphasize information or indicate potential risk to personnel or equipment:

- **WARNING**
  Warns you to avoid injury to yourself or others by following the safety instructions precisely.

- **CAUTION**
  Alerts you to a condition that might cause serious damage.

- **IMPORTANT**
  Alerts you to a condition that might cause problems.

- **NOTE**
  Emphasizes important information.

- **TIP**
  Provides extra information and hints.
Chapter 2
CS 9300C OVERVIEW

General Overview

The CS 9300C is composed of the following functional components:

- The unit head that contains all the electronic control
- The rotative arm
- The fixed arm with a control panel
- The panoramic and 3D digital sensor
- The X-ray source assembly
- The X-ray remote control
- The chin rest base
- The panoramic chin rest and bite block
- The 3D bite block and support
- The 3D head rest
- The temple supports
- The hand grips
- The cephalostat arm
- The cephalostat head
- The head clamps and ear cones
- The nasion support
- The acquisition software (see “Imaging Software Overview”)

The following figures illustrate the general overview of the CS 9300C system.
Mobile Components

Figure 2-1 illustrates the up and down movement of the CS 9300C mobile component and the 360° rotation of the rotative arm.

Figure 2–1   CS 9300C Mobile Components
General Functional Components

Figure 2-2 illustrates the general functional components of the CS 9300C.

Figure 2–2  CS 9300C Functional Components

1  ON/OFF button
2  Unit fixed arm
3  Control panel
4  Hand Grips
5  Chin rest base
5 a  Panoramic chin rest
5 b  3D chin rest and bite block
6  Temple supports
7  Sensor
8  X-ray source assembly
9  Unit rotative arm
10 X-Ray remote control
11 Cephalostat arm
12 Cephalostat head
13 Head clamps and ear cones
14 Nasion support
15 PC hosting the imaging and the acquisition software
Digital Sensor Locations

Figure 2-3 illustrates the locations of the following digital sensors:

- *Panoramic and 3D digital sensor
- Cephalometric digital sensor

panoramic, 3D and cephalometric digital sensors of the CS 9300C.
Laser Locations

Figure 2-4 illustrates the location of the lasers of the CS 9300C.

**Figure 2–4 CS 9300C System Laser Positions**

1. 3D central positioning laser beam
2. Mid-sagittal positioning laser beam
3. Horizontal positioning laser beam
4. 3D Field of View (FoV) positioning laser beam
5. Cephalometric Frankfurt positioning laser beam
Control Panel Overview

The control panel is an alphanumeric, digital soft touch console. It allows the operator to control certain unit functions. It also displays the operating parameters and error messages.

Figure 2–5    Unit Control Panel

1  Height Adjustment button: Adjusts the height of the unit to the height of the patient.
2  3D Head Adjustment button: Adjusts the patient head to the X-ray beams.
3  3D Adjustment button (active in Technical Mode only): Adjusts the unit rotative arm movements.
4  Laser Beam button: Activates the beams to correctly position the patient.
5  3D Position Verification button: Positions the unit rotative arm at the selected or memorized 3D position.
6  Reset button: Resets the unit arm to the initial position to enable the patient to enter and exit the Unit.
7  3D Memorization button (active in Technical Mode only): Memorizes the 3D current positioning parameter settings that override the default parameters.
8  Display Screen: Displays the current acquisition parameters and the error messages.
9  Ready Indicator LED: Green, indicates the unit is ready for acquisition.
10 X-Ray Emission LED: Yellow, indicates the X-rays are being emitted.
11 System Status LED: Red, indicates the error alerts.
X-Ray Remote Control Overview

The x-ray remote control enables you to launch a radiological image acquisition via the exposure button from outside the X-ray room. You must press and hold the exposure button until the end of acquisition.

WARNING
Premature release of the exposure button will interrupt the acquisition.

Figure 2–6  X-Ray Remote Control

1  Exposure button: launches image acquisition.
Positioning Accessories and Replacement Parts

The following accessories are used when positioning a patient. They are delivered with the CS 9300.

Panoramic Positioning Accessories

Table 2-1 lists the panoramic positioning accessories.

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Panoramic chin rest" /></td>
<td>Panoramic chin rest</td>
</tr>
<tr>
<td><img src="image" alt="TMJ x2" /></td>
<td>TMJ x2</td>
</tr>
<tr>
<td><img src="image" alt="Sinus" /></td>
<td>Sinus</td>
</tr>
<tr>
<td><img src="image" alt="TMJ x4 nose rest" /></td>
<td>TMJ x4 nose rest</td>
</tr>
<tr>
<td><img src="image" alt="Panoramic standard bite block" /></td>
<td>Panoramic standard bite block</td>
</tr>
<tr>
<td><img src="image" alt="Bite block for edentulous patients" /></td>
<td>Bite block for edentulous patients</td>
</tr>
<tr>
<td><img src="image" alt="Single use sheaths for bite blocks" /></td>
<td>Single use sheaths for bite blocks (500 pcs box)</td>
</tr>
</tbody>
</table>
3D Positioning Accessories

Table 2-2 lists the 3D positioning accessories.

Table 2–2  3D Positioning Accessories and Replacement Parts

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="3D bite block" /></td>
<td>3D bite block</td>
</tr>
<tr>
<td><img src="image" alt="3D bite block support" /></td>
<td>3D bite block support</td>
</tr>
<tr>
<td><img src="image" alt="3D head rest" /></td>
<td>3D head rest</td>
</tr>
<tr>
<td><img src="image" alt="Single use hygienic sleeves for 3D bite block" /></td>
<td>Single use hygienic sleeves for 3D bite block (100 pcs box)</td>
</tr>
</tbody>
</table>
Chapter 3
IMAGING SOFTWARE OVERVIEW

Computer System Requirements
For information on the minimum computer system requirements and the configuration for Imaging Software, see the CS 9300 and CS 9300C Safety, Regulatory and Technical Specifications User Guide.

IMPORTANT
It is MANDATORY to check that the computer system configuration is compatible with the computer system requirements for the CS 9300C software. If necessary you MUST update your computer system configuration. The CS 9300C MUST be connected to the computer via a point-to-point Ethernet link and not via a LAN.

General Software Overview
The CS 9300C operates with the following software:

- Imaging software
- Acquisition interface

Imaging Software
The imaging software is a user-friendly working interface that was designed and developed specifically for radiological diagnosis. It is the common imaging platform for all our digital systems for dentistry.

The imaging software has the following features:

- Patient management
- Extraoral and intraoral image management
- 3D image management

Cephalometric Acquisition Interface
The cephalometric acquisition interface is a user-friendly working interface that was designed and developed specifically for the CS 9300C system.
Cephalometric Acquisition Interface Overview

The **Cephalometric Acquisition** interface is the main cephalometric interface with the CS 9300C system that provides you with imaging acquisition functions.

**Figure 3–1  Cephalometric Acquisition Interface**

1. **Information button:**
   - **About:** Identifies the Software and the Firmware versions.
   - **Reset of the Values:** Resets to the manufacturing parameter settings.
   - **Memorize settings:** Memorizes the user preference settings for each patient type (kV, mA and seconds).
   - **Save current mode as default:** Sets the current selected program to be available by default each time you access the Acquisition interface.

2. **Preview Screen:** Displays the acquired image in real time.

3. **Selected Parameter Display:** Displays the current acquisition parameter settings.

4. **System Status Screen:** Displays various alert or warning messages originating from the unit.

5. **Generator Cooling indicator:** Indicates the automatic cooling time (mm:ss) required for the generator to reach 0 for a new acquisition.
6 Stop button: Stops the unit rotative arm movement

7 Ready Indicator LED
   • Green indicates the unit is ready to start acquisition.
   • Black indicates the unit is not ready to start acquisition.

8 X-Ray Emission indicator: Yellow, indicates the X-ray emission status.

9 Exit button: Closes the Acquisition interface.

10 Selector Button: Selects different acquisition setting options.
   • Click Program to select examination type options.
   • Click Patient to select patient type parameters.
   • Click Parameters to select exposure parameter options.
Cephalometric Program Pane

The cephalometric Program pane enables you to choose different radiological exams as well as different acquisition formats.

Figure 3–2 Cephalometric Program Pane

1  Radiological exam options:
   Click for a lateral exam.  Click for a submento-vertex exam.
   Click or for a frontal exam (AP and PA).
   Click for an oblique exam.

2  Acquisition format options:
   Select for a 18 x 18 format.  Select for a 24 x 24 format.  Select for a 30 x 30 format.
   Select for a 18 x 24 format.  Select for a 24 x 30 format.

NOTE
The above list of exam types are only a sample of exam options of the Program pane.
Cephalometric Patient Pane
The cephalometric **Patient pane** enables you to choose different patient parameters. The selection of the patient parameters influences the quality of the image. The selected parameters must be based on the patient age and morphology.

**Figure 3–3  Cephalometric Patient Pane**

**Patient type parameters:**

- Click if the patient is a child.
- Click if the patient is small.
- Click if the patient is medium.
- Click if the patient is large.
Cephalometric Parameter Pane

The cephalometric Parameter pane enables you to choose exposure parameters for the radiological image acquisition. If the default parameter setting is not adapted to your patient type, you can manually adapt the parameter settings to the patient type and save this setting as the default setting.

Figure 3–4  Cephalometric Parameter Pane

1  Radiation dose options:

   kV: Kilovolt
   mA: Milliampere
   S: Second

2  Fine-tuning buttons:

Click to fine-tune the kV, mA and the second.
Chapter 4
GETTING STARTED

Switching On the Unit
Before switching on the unit, check that:

- The installation of the unit is complete.
- The PC is switched ON.

**IMPORTANT**
You must switch On the PC and wait for it to be ready for connection before switching ON the unit.

To switch on the unit, follow these steps:

1. On the unit column, press the **ON** button.

2. Switch on the unit and wait for a minute for the connection between the unit and the computer to be established. In the status bar, ![red](red) must become ![green](green).

3. If you start the imaging software before the connection is established an error message is displayed. Click **OK**, close the imaging software and wait for the connection to be established.

4. You can now proceed to start the imaging software.

**IMPORTANT**
To increase the operating life of the X-ray tube, if the unit has not been used for a month, you must follow the following procedures before use.

1. In the **Panoramic Acquisition** interface, select the **Parameter pane**.
2. Select the following series of parameter settings:
   - 70 kV - 6.3 mA
   - 80 kV - 10 mA
   - 85 kV - 10 mA

3. Leave the X-ray room and close the door. For each parameter setting, from the X-ray remote control, press and hold the button to launch the X-ray.

   The unit is now ready to be used for acquisition.

Starting the Imaging Software

Depending on your particular configuration you may have either Kodak Dental Imaging Software or CS Imaging Software installed.

- For **KODAK Dental Imaging Software** see “Starting the KODAK Dental Imaging Software”.
- For **CS Imaging Software** see “Starting the CS Imaging Software”.

Starting the KODAK Dental Imaging Software

To start the imaging software, follow these steps:

1. On your desktop, double-click 👈.

   OR

   From your computer, click **Start > All Programs > Kodak > Kodak Dental Imaging Software.**

   ![Start Menu](https://via.placeholder.com/150)

   A blank **Patient window** is displayed.

2. Create or open an existing patient record.

Creating a Patient Record

To create a patient record, follow these steps:
1. In the **Patient window**, from the toolbar, click

   OR

   From the menu bar, select **Patient > New**.

2. Enter the required patient information. The **Last name**, the **First name** and the **Date of birth** fields are required.

3. From the menu bar, select **Picture > Insert Picture** to add a *.tif* or *.bmp* picture of the patient to the record. Select the picture from your directory and click **Open**.

4. Click **OK** to save. The patient record is automatically assigned a 7-digit number starting with a letter (for example, M0000001).

5. Click to access the **Imaging window**.

6. Select an image acquisition.

**Accessing the Cephalometric Acquisition Interface**

To access the **Acquisition** interface, follow these steps:

1. In the **Imaging window**, from the toolbar, click to access the **Cephalometric Acquisition** interface.

2. Prepare the acquisition parameters and launch an acquisition.
Starting the Imaging Software

To start the CS Imaging Software, follow these steps:

1. On your desktop, double-click \( \text{[Image]} \). The **Patient Browser** tab is displayed.

2. You must now create a patient card.

Creating a Patient Card

To create a patient card, follow these steps:

1. Click \( \text{[Image]} \) in the **Patient Browser** tab. The **Patient Card** window is displayed.

2. Enter the patient information in the **Patient Card** window.

   ![Patient Card window](image)

   *Note: The First Name and Last Name fields are mandatory. All other fields are optional. Shaded fields are filled automatically and are not editable.*

3. When you have finished entering data, click **OK**.

   The **Patient Card** window closes, and the patient now appears in the patient list.
4 You can now access the acquisition interface.

**Accessing the Acquisition Interface**

To access the **Acquisition** interface, follow these steps:

1. Select and double-click the patient card in the patient list. The **Image Viewer** tab is displayed.

2. In the **Image Viewer** tab, click ![image viewer icon] to access the **Cephalometric Acquisition** interface.

   The acquisition interface is displayed.

See the chapter “**Acquiring an Image**” to launch an acquisition.
Chapter 5
ACQUIRING CEPHALOMETRIC IMAGES

Acquiring a Lateral Image

Before acquiring a lateral image, check that you have:
- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the Imaging window.
- Accessed the Cephalometric Acquisition interface.

Preparing the Unit and Setting the Acquisition Parameters for the Adult Patient

To set the acquisition parameters, follow these steps:

1. Position the head clamps manually for the lateral exam.

   **IMPORTANT**
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:
   - The for a lateral exam is active.
   - Select the appropriate acquisition format option.

3. Click the Patient button to access the Patient pane. Select the adult patient type.

4. If the default parameter setting is not adapted to your adult patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click and select Memorize settings.
Preparing the Unit and Setting the Acquisition Parameters for the Pediatric Patient

To set the acquisition parameters, follow these steps:

1. Position the head clamps manually for the lateral exam.

   **IMPORTANT**

   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:
   - The \( \text{ for a lateral exam is active.} \)
   - Select the appropriate acquisition format option.

3. Click the Patient button to access the Patient pane. Select the pediatric patient type.

4. If the default parameter setting is not adapted to your pediatric patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click \( i \) and select Memorize settings.
Preparing and Positioning the Adult Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.

2. Ask the patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the patient’s shoulders.

3. Open the head clamps and ask the patient to stand up straight, in front of the cephalometric unit, in the appropriate position.

4. On the control panel, press and hold to level the ear cones to the patient's auditory canals.

5. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.

6. On the control panel, click to turn ON the Frankfort laser positioning beam. Align the patient with the Frankfort laser beam.
7. Lower the nasion support to a vertical position.
Preparing and Positioning the Pediatric Patient

To prepare and position the pediatric patient, follow these steps:

1. Ask the pediatric patient to remove all metal objects.

2. Ask the pediatric patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the patient’s shoulders.

3. Open the head clamps and ask the pediatric patient to stand up straight, in front of the cephalometric unit, in the appropriate position.

4. On the control panel, press and hold \( \text{button} \) to level the ear cones to the pediatric patient’s auditory canals.

5. Insert gently one cone in the auditory canal of the pediatric patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the pediatric patient.

6. On the control panel, click \( \text{button} \) to turn ON the Frankfort laser positioning beam. Align the pediatric patient with the Frankfort laser beam.
7. Lower the nasion support to a vertical position.
Launching the X-ray

To launch the X-ray, follow these steps:

1. Leave the X-ray room and close the door. You must keep visual contact with the patient during acquisition.

   **IMPORTANT**
   To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.

2. Launch the X-ray with the remote control. Press and hold the exposure button until the end of acquisition. The turns yellow, indicating X-ray emission. The image appears on the **Preview Screen** of the **Cephalometric Acquisition** interface. When the acquisition ends, the **Cephalometric Acquisition** interface disappears and the acquired image is transferred automatically to the **Imaging window**.

3. Check the image quality, if satisfactory, remove the ear cones and the nasion support and release the patient.
Acquiring a Frontal AP or PA Image

Before acquiring a frontal AP or PA image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the Imaging window.
- Accessed the Cephalometric Acquisition interface.

Preparing the Unit and Setting the Acquisition Parameters for the Adult Patient

To acquire a frontal AP or PA image, follow these steps:

1. Position the head clamps manually for the frontal AP or PA exam.

   IMPORTANT
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:

   - The for a frontal AP exam is active.
   - Click for a frontal PA exam.
   - Select the appropriate acquisition format option.

3. Click the Patient button to access the Patient pane. Select the adult patient type.

4. If the default parameter setting is not adapted to your adult patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click and select Memorize settings.
Preparing the Unit and Setting the Acquisition Parameters for the Pediatric Patient

To acquire a frontal AP or PA image, follow these steps:

1. Position the head clamps manually for the frontal AP or PA exam.

   **IMPORTANT**
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the **Program** button to access the Program pane. In the Program pane:
   - The **** for a frontal AP exam is active.
   - Click **** for a frontal PA exam.
   - Select the appropriate acquisition format option.

3. Click the **Patient** button to access the Patient pane. Select the pediatric patient type.

4. If the default parameter setting is not adapted to your pediatric patient type, click the **Parameter** button and select the appropriate parameters. To save the new parameter settings as the default settings, click **Memorize settings**.
Preventing and Positioning the Adult Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.

2. Ask the patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the patient’s shoulders.

3. Open and position the head clamps parallel to the cephalometric sensor. Ask the patient to stand up straight in front of the cephalometric unit in the following positions:
   - For a frontal AP, facing the generator
   - For a frontal PA, facing the cephalometric sensor

4. On the control panel, press and hold to level the ear cones to the patient’s auditory canals.

5. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.

6. On the control panel, click to turn ON the Frankfort laser positioning beam. Align the patient with the Frankfort laser beam for the frontal AP only.
Preparing and Positioning the Pediatric Patient

To prepare and position the pediatric patient, follow these steps:

1. Ask the pediatric patient to remove all metal objects.

2. Ask the pediatric patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the pediatric patient’s shoulders.

3. Open and position the head clamps parallel to the cephalometric sensor. Ask the pediatric patient to stand up straight in front of the cephalometric unit in the following positions:
   - For a frontal AP, facing the generator
   - For a frontal PA, facing the cephalometric sensor

4. On the control panel, press and hold \( \text{(button)} \) to level the ear cones to the pediatric patient’s auditory canals.

5. Insert gently one cone in the auditory canal of the pediatric patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the pediatric patient.

6. On the control panel, click \( \text{(button)} \) to turn ON the Frankfort laser positioning beam. Align the pediatric patient with the Frankfort laser beam for the frontal AP only.
Launching the X-ray

To launch the X-ray, follow these steps:

1. Leave the X-ray room and close the door. You must keep visual contact with the patient during acquisition.

   **IMPORTANT**

   To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.
2. Launch the X-ray with the remote control. Press and hold the exposure button until the end of acquisition. The turns yellow indicating X-ray emission. The image appears on the Preview Screen of the Cephalometric Acquisition interface. When the acquisition ends, the Cephalometric Acquisition interface disappears and the acquired image is automatically transferred to the Imaging window.

3. Check the image quality. If satisfactory, remove the ear cones and release the patient.
Acquiring an Oblique Image

Before acquiring an oblique image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the Imaging window.
- Accessed the Cephalometric Acquisition interface.

Preparing the Unit and Setting the Acquisition Parameters for the Adult Patient

To acquire an oblique image, follow these steps:

1. Position the head clamps manually for the oblique exam with the desired angle.

   **IMPORTANT**
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:

   - The for an oblique exam is active.
   - Click to select the desired angle.
   - Select the appropriate acquisition format option.

3. Click the Patient button to access the Patient pane. Select the adult patient type.

4. If the default parameter setting is not adapted to your adult patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click and select Memorize settings.
Preparing the Unit and Setting the Acquisition Parameters for the Pediatric Patient

To acquire an oblique image, follow these steps:

1. Position the head clamps manually for the oblique exam with the desired angle.

   **IMPORTANT**
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:
   - The icon for an oblique exam is active.
   - Click to select the desired angle.
   - Select the appropriate acquisition format option.

3. Click the Patient button to access the Patient pane. Select the pediatric patient type.

4. If the default parameter setting is not adapted to your pediatric patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click and select Memorize settings.
Preparing and Positioning the Adult Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.

2. Ask the patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the patient’s shoulders.

3. Open the head clamps and ask the patient to stand up straight in front of the cephalometric unit, in the appropriate position.

4. On the control panel, press and hold the button to level the ear cones to the patient’s auditory canals.

5. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.

6. Lower the nasion support to a vertical position.
Acquiring an Oblique Image

Preparing and Positioning the Pediatric Patient

To prepare and position the pediatric patient, follow these steps:

1. Ask the pediatric patient to remove all metal objects.

2. Ask the pediatric patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the pediatric patient’s shoulders.

3. Open the head clamps and ask the pediatric patient to stand up straight in front of the cephalometric unit, in the appropriate position.

4. On the control panel, press and hold to level the ear cones to the pediatric patient’s auditory canals.

5. Insert gently one cone in the auditory canal of the pediatric patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the pediatric patient.

6. Lower the nasion support to a vertical position.
Launching the X-ray

To launch the X-ray, follow these steps:

1. Leave the X-ray room and close the door. You must keep visual contact with the patient during acquisition.

   
   \[\text{IMPORTANT}\]
   To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.

2. Launch the X-ray with the remote control. Press and hold the exposure button until the end of acquisition. The \(\text{X}\) turns yellow indicating X-ray emission. The image appears on the Preview Screen of the Cephalometric Acquisition window. When the acquisition ends, the Cephalometric Acquisition interface disappears and the acquired image is automatically transferred to the Imaging window.

3. Check the image quality. If satisfactory, remove the ear cones and the nasion support. Release the patient.
Acquiring a Submento-Vertex Image

Before acquiring a submento-vertex image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the Imaging window.
- Accessed the Cephalometric Acquisition interface.

Preparing the Unit and Setting the Acquisition Parameters for the Adult Patient

To acquire a submento-vertex image, follow these steps:

1. Position the head clamps manually for a frontal AP exam.

   **IMPORTANT**
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

1. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:

   - The for a frontal AP exam is active.
   - Click for a submento-vertex exam.
   - Select the appropriate acquisition format option.

2. Click the Patient button to access the Patient pane. Select the adult patient type.

3. If the default parameter setting is not adapted to your adult patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click and select Memorize settings.
Preparing the Unit and Setting the Acquisition Parameters for the Pediatric Patient

To acquire a submento-vertex image, follow these steps:

1. Position the head clamps manually for a frontal AP exam.

   **IMPORTANT**
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

   1. In the Cephalometric Acquisition interface, click the **Program** button to access the Program pane. In the Program pane:

      - The [ ] for a frontal AP exam is active.
      - Click [ ] for a submento-vertex exam.
      - Select the appropriate acquisition format option.

   2. Click the **Patient** button to access the Patient pane. Select the pediatric patient type.

   3. If the default parameter setting is not adapted to your pediatric patient type, click the **Parameter** button and select the appropriate parameters. To save the new parameter settings as the default settings, click [ ] and select **Memorize settings**.
Preparing and Positioning the Adult Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.

2. Ask the patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the patient’s shoulders.

3. Open the head clamps and ask the patient to sit, for a more comfortable position, or stand up straight in front of the cephalometric unit, in the appropriate position.

4. On the control panel, press and hold \( \) to level the ear cones to the patient’s auditory canals.

5. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.
Preparing and Positioning the Pediatric Patient

To prepare and position the pediatric patient, follow these steps:

1. Ask the pediatric patient to remove all metal objects.

2. Ask the pediatric patient to wear a lead apron with a thyroid collar. Ensure that the apron lays flat across the pediatric patient’s shoulders.

3. Open the head clamps and ask the pediatric patient to sit, for a more comfortable position, or stand up straight in front of the cephalometric unit, in the appropriate position.

4. On the control panel, press and hold to level the ear cones to the pediatric patient’s auditory canals.
5. Insert gently one cone in the auditory canal of the pediatric patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the pediatric patient.

Launching the X-ray

To launch the X-ray, follow these steps:

1. Leave the X-ray room and close the door. You must keep visual contact with the patient during acquisition.

**IMPORTANT**

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.
2. Launch the X-ray with the remote control. Press and hold the exposure button until the end of acquisition. The turns yellow indicating X-ray emission. The image appears on the Preview Screen of the Cephalometric Acquisition interface. When the acquisition ends, the Cephalometric Acquisition interface disappears and the acquired image is automatically transferred to the Imaging window.

3. Check the image quality. If satisfactory, remove the ear cones and release the patient.
Acquiring a Carpus Image

Through radiological analysis of ossification to the carpal bone, you can assess the growth or maturity rate of a pediatric patient.

Before acquiring a carpus image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the Imaging window.
- Accessed the Cephalometric Acquisition interface.

Preparing the Unit and Setting the Acquisition Parameters for the Pediatric Patient

To acquire a carpus image, follow these steps:

1. Position the head clamps manually for a frontal AP exam.

   IMPORTANT
   
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

2. In the Cephalometric Acquisition interface, click the Program button to access the Program pane. In the Program pane:

   - The icon for a frontal AP exam is active.
   - Click for a carpus exam.
   - Select the 30 x 30 acquisition format.

3. Click the Patient button to access the Patient pane. Select the pediatric patient type.

4. If the default parameter setting is not adapted to your pediatric patient type, click the Parameter button and select the appropriate parameters. To save the new parameter settings as the default settings, click and select Memorize settings.
Preparing and Positioning the Pediatric Patient

To prepare and position the pediatric patient, follow these steps:

1. Ask the pediatric patient to remove all metal objects.

2. Ask the pediatric patient to wear a lead apron with a thyroid collar. Ensure that the lead apron covers the patient's thyroid area and lays flat across the patient's shoulders.

3. Ask the pediatric patient to:
   - Stand to the side and as far as possible from the cephalometric unit.
   - Open the hand fully and place it flat on the sensor.

WARNING
To avoid exposure to other parts of the body, make sure that the pediatric patient stands as far away as possible from the X-ray emission range and extends the hand to the sensor.

IMPORTANT
Make sure that the:
- hand, wrist, and forearm are in a completely vertical position.
- hand is approximately in the middle of the sensor.
Launching the X-ray

**WARNING**
To avoid exposure to other parts of the body, make sure that the pediatric patient stands as far away as possible from the X-ray emission range and extends the hand to the sensor.

To launch the X-ray, follow these steps:

1. Leave the X-ray room and close the door. You must keep visual contact with the patient during acquisition.

2. Launch the X-ray with the remote control. Press and hold the exposure button until the end of acquisition. The turns yellow indicating X-ray emission. The image appears on the Preview Screen of the Cephalometric Acquisition interface. When the acquisition ends, the Cephalometric Acquisition interface disappears and the acquired image is automatically transferred to the Imaging window.

**IMPORTANT**
If you have a problem and need to stop the acquisition, release the exposure button of the remote control or press the red emergency stop button.

3. Check the image quality, if satisfactory, then release the patient.
X-Ray Dose Emission Information

Compliance with EURATOM 97/43 Directive

You can right-click on each image to display the estimated emitted dose received by the patient. You can use this information to calculate the effective dose received by the patient for the image.

The radiation emission dose is expressed in mGy.cm². This dose is measured at the primary collimator outlet. The dose is accurate to +/-30%. The primary slot is 17.6 mm wide and 17.6 mm high.
Chapter 6
MAINTENANCE

Perform the following maintenance activities on your CS 9300C unit.

**Daily**

**Cleaning the CS 9300C unit**

1. Switch off the unit.

2. Clean all accessible parts of the unit using low-level disinfectants that are U.S. Environmental Protection Agency (EPA)-registered or low-level disinfectants that are recognized by your Local Authority. An EPA-registered hospital disinfectant or any other low-level disinfectant must have clear label claims for intended use. You must follow the manufacturer instructions for use.

   **CAUTION**
   Avoid applying any cleaning liquid to the inside parts of the unit.

**Cleaning and disinfecting the Accessories**

**CAUTION**
We recommend that you cover the accessories with FDA-cleared protective sheaths that are available from distributors. After you remove and discard the protective sheath, each accessory must be cleaned and disinfected between each patient use.

**Cleaning and disinfecting the accessories that have contact with the mucous membranes**

The accessories are delivered unsterilized. To ensure maximum hygienic safety for the patient, follow the following instructions carefully to prepare them for use:

The following accessories must be heat-sterilized or disinfected with high-level disinfectant between each patient use:

- TMJx4 nose rest
- Panoramic standard bite block
- Bite block for edentulous patient
- 3D bite block

To clean and disinfect the accessories:

1. Remove all visible soil by scrubbing with a surfactant, detergent, and water.
2. Rinse with water to remove chemical or detergent residue.

3. Sterilize by steaming under pressure (autoclaving) for 18 mn at 134 °C, or use a high-level disinfectant (for example, Glutaraldehyde, glutaraldehyde with phenol, hydrogen peroxide, hydrogen peroxide with peracetic acid, ortho-phthalaldehyde).

**WARNING**
To sterilize with heat, you must use a medical sterilization equipment cleared by the FDA in the USA. You must always follow the sterilization operating parameters recommended by the manufacturer of the equipment. You must always follow the manufacturer instructions for use of high-level disinfectants.

4. Use immediately or within a short period of time.

**Cleaning and disinfecting the ear cones**

**CAUTION**
Ear cones must be covered with a FDA-cleared protective sheath which is available from distributors. After use, remove and discard the protective sheath. You must clean and disinfect the ear cones between each patient use with an EPA-registered, intermediate-level hospital disinfectant with label claims of tuberculocidal activity (for example: a chlorine containing product, a quaternary ammonium compound with alcohol, a phenolics, an iodophors, an EPA-registered chlorine-base product).

To clean and disinfect the ear cones:

1. Remove the protective sheath.

2. Clean and remove all visible soil by scrubbing with a surfactant, detergent, and water.

3. Use an intermediate-level disinfectant with tuberculocidal activity as identified above and as recommended by the manufacturer of the disinfectant.

**WARNING**
Do not rinse the ear cones.

4. Allow to dry in open air.

**Cleaning and disinfecting the components that have skin contact**
You must disinfect all components and the following accessories with a low-level disinfectant between each patient use:

- Panoramic/ TMJx2/ Sinus chin rest
- 3D bite block support
- 3D head rest
- Nasion support

To clean and disinfect the components:

1. Clean and remove all visible soil by scrubbing with a surfactant, detergent, and water.
2. Rinse with water to remove chemical or detergent residue.
3. Disinfect with an EPA-registered, hospital disinfectant for low-level activity (for example, quaternary ammonium compounds, some phenolics, and some iodophors). You must use the disinfectant according to the manufacturer instructions.

**CAUTION**
If there is a visible contamination with blood, you must clean the components and accessories with an EPA-registered intermediate-level hospital disinfectant that has a tuberculocidal claim. You must use the disinfectant according to the manufacturer instructions.

**Monthly**
Wipe the outer covers of the unit with a soft, dry cloth.

**Annually**
We recommend a general inspection of the unit carried out by an authorized service technician.
Annually
Chapter 7
TROUBLESHOOTING

Quick Troubleshooting

Occasionally, malfunctions can occur during use in the event of an incorrect action. An information (I) error code is displayed on the Display Screen of the unit Control Panel and the message is displayed on the popup on the Acquisition interface System Status Screen. In some cases, an audible warning is also issued.

The following table lists the information messages, their description and the action to take:

**IMPORTANT**
If an “E” message is displayed, the malfunction persists or more serious conditions occur, contact a qualified technician. When you call the qualified technician have the following information ready:

- Model Number: CS 9300C
- Error Code Number: E xx
- Message displayed on the popup on the Acquisition interface.

Table 7–1 Quick Troubleshooting

<table>
<thead>
<tr>
<th>Information Error Code</th>
<th>Information Message</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>I 1</td>
<td>X-ray tube cooling</td>
<td>Cooling in progress.</td>
<td>Wait until the Generator Cooling Indicator on the Acquisition interface reaches zero.</td>
</tr>
<tr>
<td>I 2</td>
<td>Thermal security</td>
<td>Cooling in progress.</td>
<td>Wait until the Generator Cooling Indicator on the Acquisition interface reaches zero.</td>
</tr>
<tr>
<td>I 3</td>
<td>Release handswitch</td>
<td>The acquisition has ended.</td>
<td>Release the exposure button of the X-ray remote control.</td>
</tr>
<tr>
<td>I 5</td>
<td>Head clamps position</td>
<td>The head clamps position does not match the selected exam program.</td>
<td>Position manually the head clamps for the selected exam.</td>
</tr>
<tr>
<td>I 9</td>
<td>Cooling Ceph sensor</td>
<td>The Cephalometric sensor is in the cooling process.</td>
<td>Wait until the Ready Indicator LED is green.</td>
</tr>
<tr>
<td>I 15</td>
<td>Interface inactive</td>
<td>The Acquisition interface cannot be accessed.</td>
<td>• Check that the unit is switched ON.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Wait for the connection between the unit and the PC.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Check that the Acquisition interface is not masked by another application, in this case close the masking application.</td>
</tr>
<tr>
<td>I 17</td>
<td>Sensor in movement</td>
<td>The sensor is in the positioning process for either panoramic, 3D or Ceph mode.</td>
<td>Wait for the end of the positioning process.</td>
</tr>
</tbody>
</table>