



Veraviewepocs® 3D & 3De
3D/Pan/Ceph For All Your Imaging Needs



J.MORITA MFG.CORP.

Thinking ahead. Focused on life.





Thinking ahead.



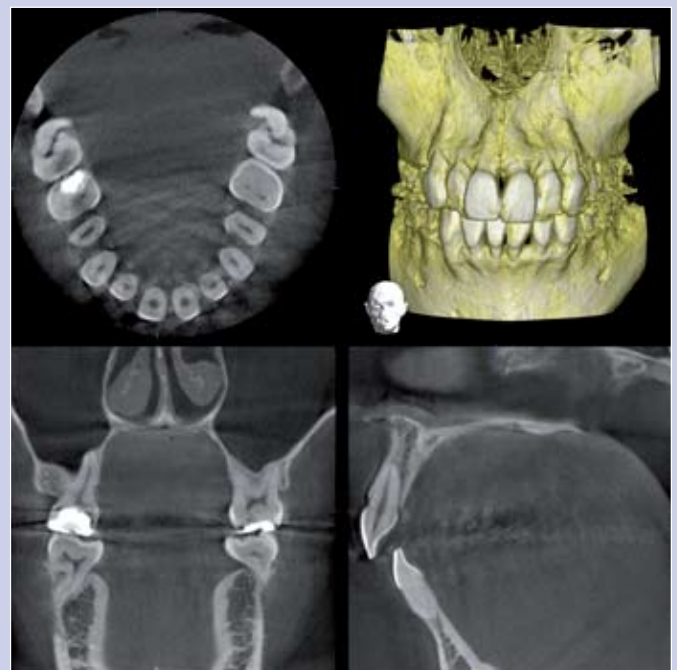
Focused on life.



Veraviewepocs 3D Interchangeable Cassettes for a Variety of Imaging Options

The Veraviewepocs 3D model offers digital 3D, panoramic, and cephalometric imaging options. Designed for versatility, a 2D model can be upgraded to 3D at a later date. Easy to operate, the Multifunction Cassette enables both panoramic and 3D images to be taken without changing the cassette. For 3D positioning, simply click the region of interest on the panoramic view and the machine automatically re-adjusts for the perfect shot.

With the optional 80 x 80 cassette, the imaging area is expanded to 80 mm in diameter by 80 mm in height which enables you to take full mouth images while still maintaining the high resolution of a 40 x 40 mm image. The images can also be exported in DICOM format for use in third party software, such as programs used for implant surgical guides, etc.



*Observation after orthodontic treatment,
Ø 80 x H 80 mm field of view*



Expanded 3D Field of View Up to 80 x 80 mm

- 3D, panoramic, and cephalometric capabilities
- Single cassette for both panoramic and 3D images*
- Offers 'true' panoramic image, not a reconstruction
- Three options for accurate 3D positioning: bi-directional scout, 5 positioning laser beams, or Morita's unique automatic re-positioning using the high resolution panoramic as a scout image
- Contrast-rich images of both hard and soft tissue with minimal artifacts and no distortion
- Super high resolution 3D images – 125 μm (micrometer) voxel
- Optional 80 x 80 cassette for larger, high resolution images
- Easy image processing with intelligent volume rendering and real-time reslice
- View 3D images on any computer or export them to third-party software for more specialized processing
- Effective dose is 1/12 of a full mouth series of film X-rays (E speed) and 1/5 the CTDI_w value of a conventional CT**
- 3D FOV options: \varnothing 40 x H 40 mm, \varnothing 40 x H 80 mm, \varnothing 80 x H 80 mm

* Applies to multifunction cassette

**Refer to page 16



Veraviewepocs 3De Built-in Sensors For All Image Types

Veraviewepocs 3De offers digital 3D, panoramic, and cephalometric imaging options, no cassette change required. This model features built-in sensors for all image types designed to save time and protect the hardware.

With Ø 40 X H 40 mm and Ø 40 X H 80 mm 3D fields of view, 3De is suitable for over 90% of all clinical cases allowing for maxillary/mandibular arch diagnosis. In addition, it offers a 'true' panoramic image which is typically covered by insurance companies, not a 3D software reconstruction. This model is available at a very affordable price and offers views with class-leading clarity, perfect for endodontics, general dentistry, and periodontics.



*Impacted teeth, the mandibular canal,
Ø 40 x H 80 mm field of view*

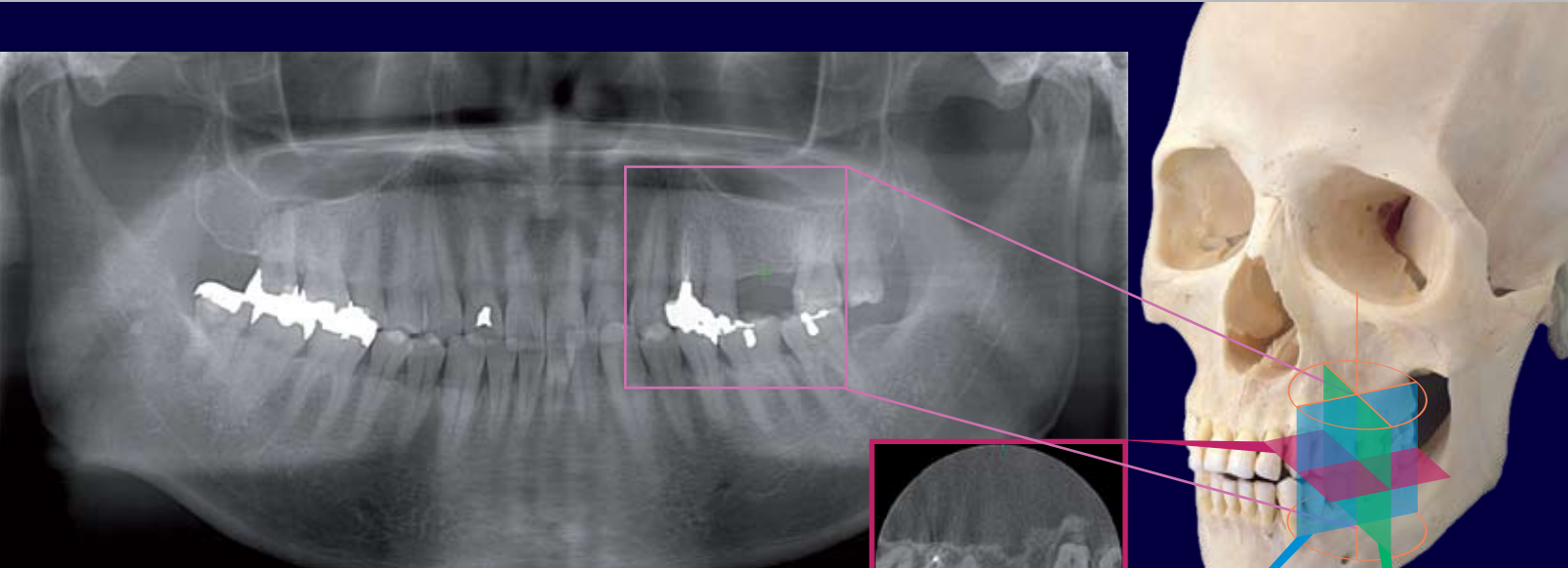


Very Affordable and Easy to Operate

- 3D, panoramic, and cephalometric capabilities
- Built-in sensors for all image types (cassette change not required)
- Suitable for over 90% of all clinical cases requiring 3D analysis
- Offers 'true' panoramic image, not a reconstruction
- Three options for accurate 3D positioning: bi-directional scout, 5 positioning laser beams, or Morita's unique automatic re-positioning using the high resolution panoramic as a scout image
- Contrast-rich images of both hard and soft tissue with minimal artifacts and no distortion
- Super high resolution – 125 μm (micrometer) voxel
- Easy image processing with intelligent volume rendering and real-time reslice
- View 3D images on any computer or export them to third party software for more specialized processing
- Effective dose is 1/12 of a full mouth series of film X-rays (E speed) and 1/5 the CTDI_w value of a conventional CT*
- Available at a very affordable price
- 3D FOV options: \varnothing 40 x H 40 mm and \varnothing 40 x H 80 mm

*Refer to page 16

Super-High Resolution and Low Effective Dose Various Imaging Areas



Taking a 3D image with a Veraviewepocs unit is easy - simply click the desired position on the panoramic image and positioning for the 3D image exposure will occur automatically.

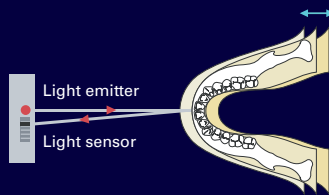
Positioning with Panoramic for 3D Image

Before taking a 3D image exposure, the instrument provides a high resolution panoramic exposure to target the region of interest on the PC monitor. The C-arm then automatically moves into the optimum patient position to get a 3D image centered on the region of interest.



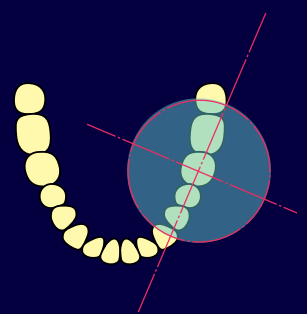
AF (Auto Focus)

A light-beam sensor automatically positions the unit without requiring the patient to move. The light-beam sensor measures the distance to the patient's teeth, then the arm automatically moves into the optimal position. This process produces images with a high degree of reproducibility.

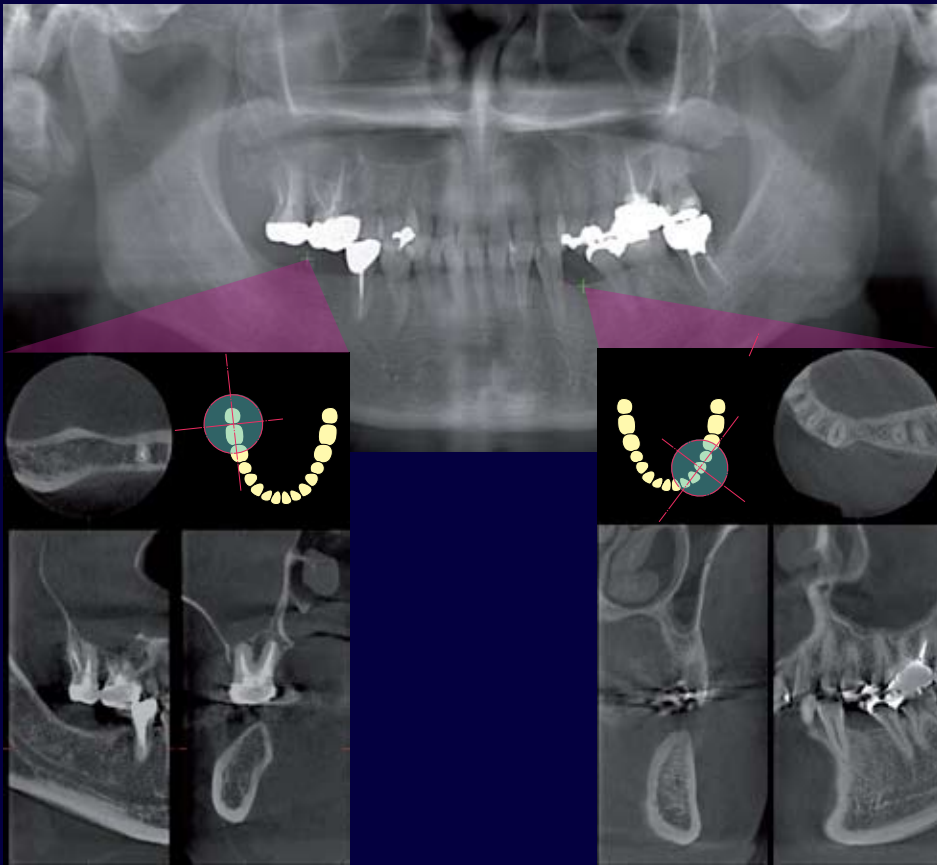


State-of-the-Art Parallel and Cross-Sectional Exposure Angles

At the start of the image generation process, a panoramic exposure follows the dental arch in the optimum parallel pattern while accommodating a variety of anatomical conditions. The resulting images display anatomical conditions based on the optimum parallel and cross-sectional slicing. You can also change parallel and cross-sectional angles on the computer in the reslicing process.



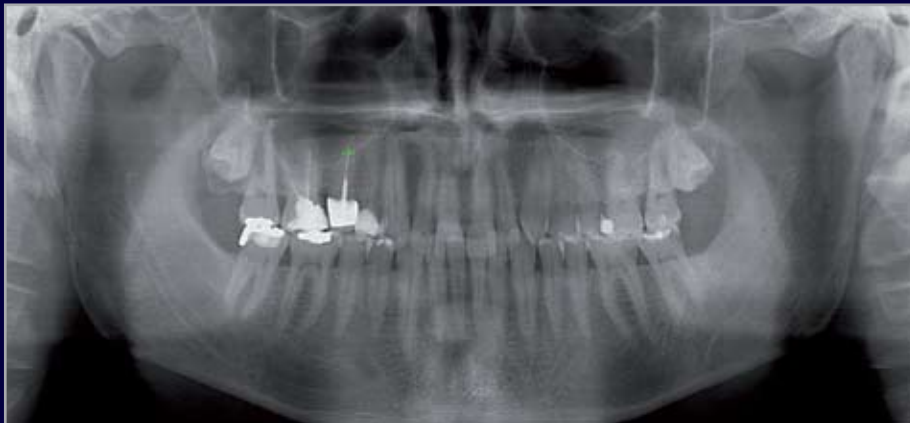
State-of-the-Art Positioning System Produces Optimum Image Results



The Veraviewepocs positioning system is easy to use and provides accurate results; the 3D image is always along the dentition.

The $\varnothing 40 \times H 80$ mm images are useful in determining the relationship of opposing teeth for dental implant planning, etc.

Apical Lesion



The upper right second premolar and the upper right first molar of the patient exhibit a periodontal infection and a radicular cyst respectively. OPG and intra-oral X-ray provide no clear presentation of the cyst.

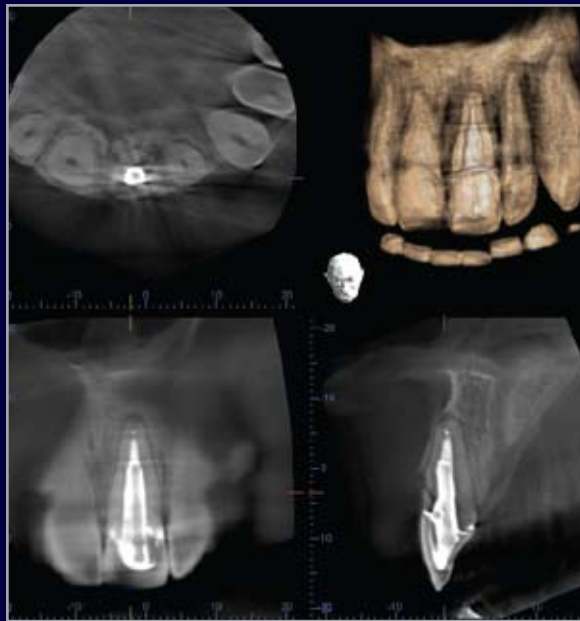


Diagnosis with 3D images: Periodontal infection around the upper right second premolar and the radicular cyst associated with the upper right first molar are observed.

Clinical Cases

The superb sensitivity and resolution of the Veraviewepocs product line provides superior image quality for hard as well as soft tissue and is an outstanding tool for any clinical case.

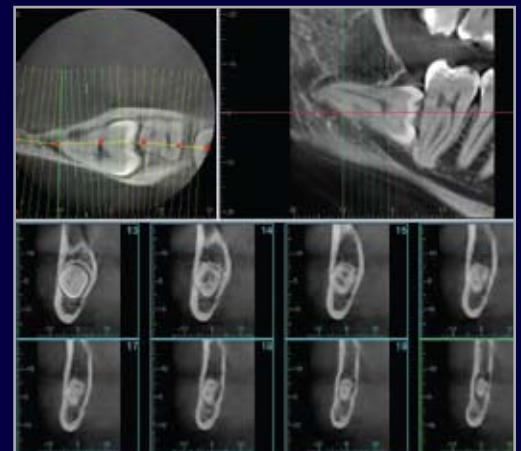
Fractured Tooth



Ø 40 x H 40 mm
80 kV, 6 mA

CBCT shows buccal cervical fracture along with widening of the labial PDL space. Lesion cannot be detected on the digital 2D periapical image.

Impacted Third Molar



Horizontally impacted tooth # 32 in contact with the distal root of tooth # 31, clearly demonstrates proximity with lingually positioned inferior alveolar canal.

Ø 40 x H 40 mm
80 kV, 7 mA

Canal Morphology



Precise mapping of the canal morphology is essential for a precise treatment plan. CBCT shows division of the pulp space at the apical third and a periapical lesion associated with the apex of tooth # 20.

Ø 40 x H 40 mm
80 kV, 6 mA

Apical Lesion

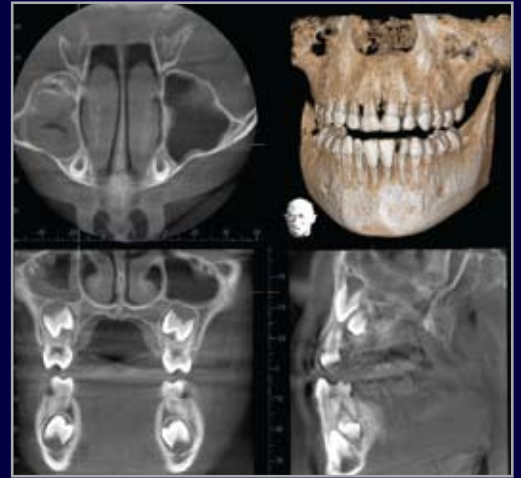
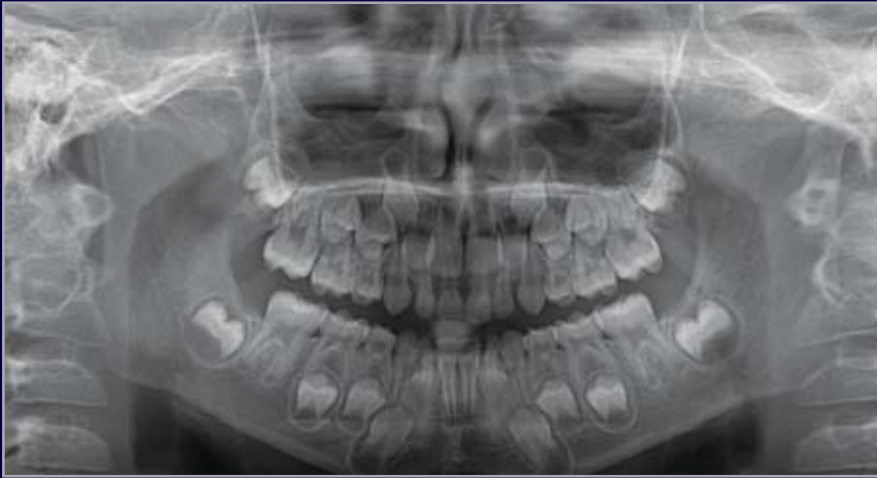


CBCT clearly shows periapical radiolucencies associated with the buccal roots of tooth # 14 along with perforation of the sinus floor and sinus pathology. These conditions could not be diagnosed from the digital periapical image.

Ø 40 x H 40 mm
80 kV, 7 mA

Clinical Cases

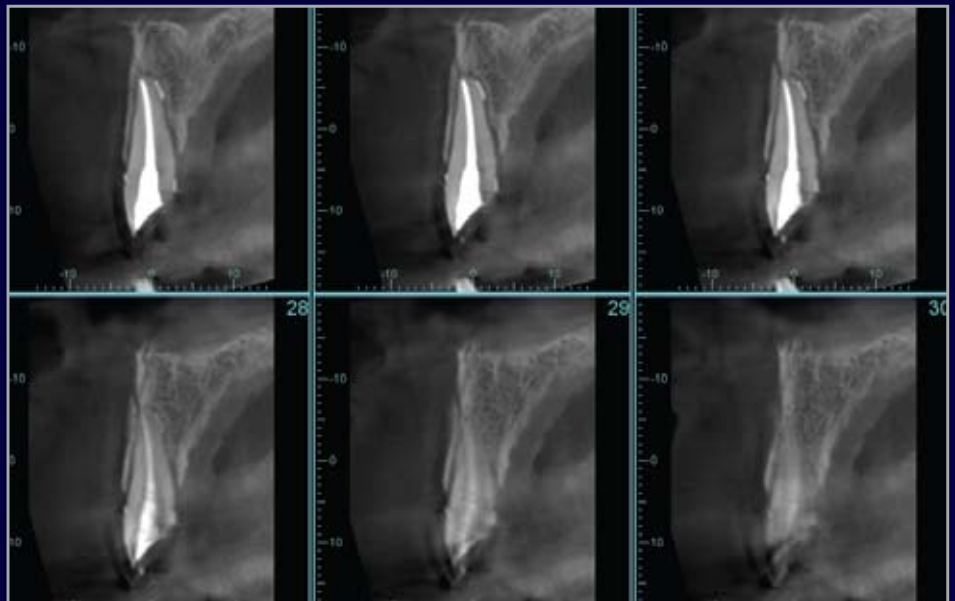
Chronic Sinusitis



CBCT shows position of the permanent dentition along with pathology in the right maxillary sinus.

Ø 80 x H 80 mm
80 kV, 3 mA

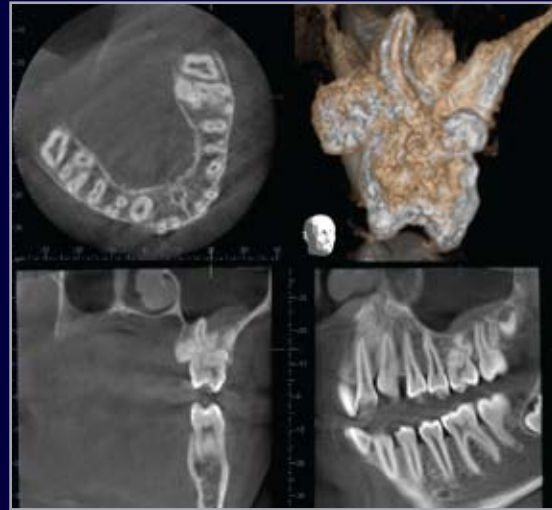
Fractured Buccal Cortical Plate



Fractured labial cortical plate after trauma to tooth # 8.

Ø 40 x H 40 mm
80 kV, 5 mA

Odontoma



Compound odontoma associated with tooth # 14.

Ø 80 x H 80 mm
80 kV, 3 mA

Impacted Teeth (the Mandibular Canal)

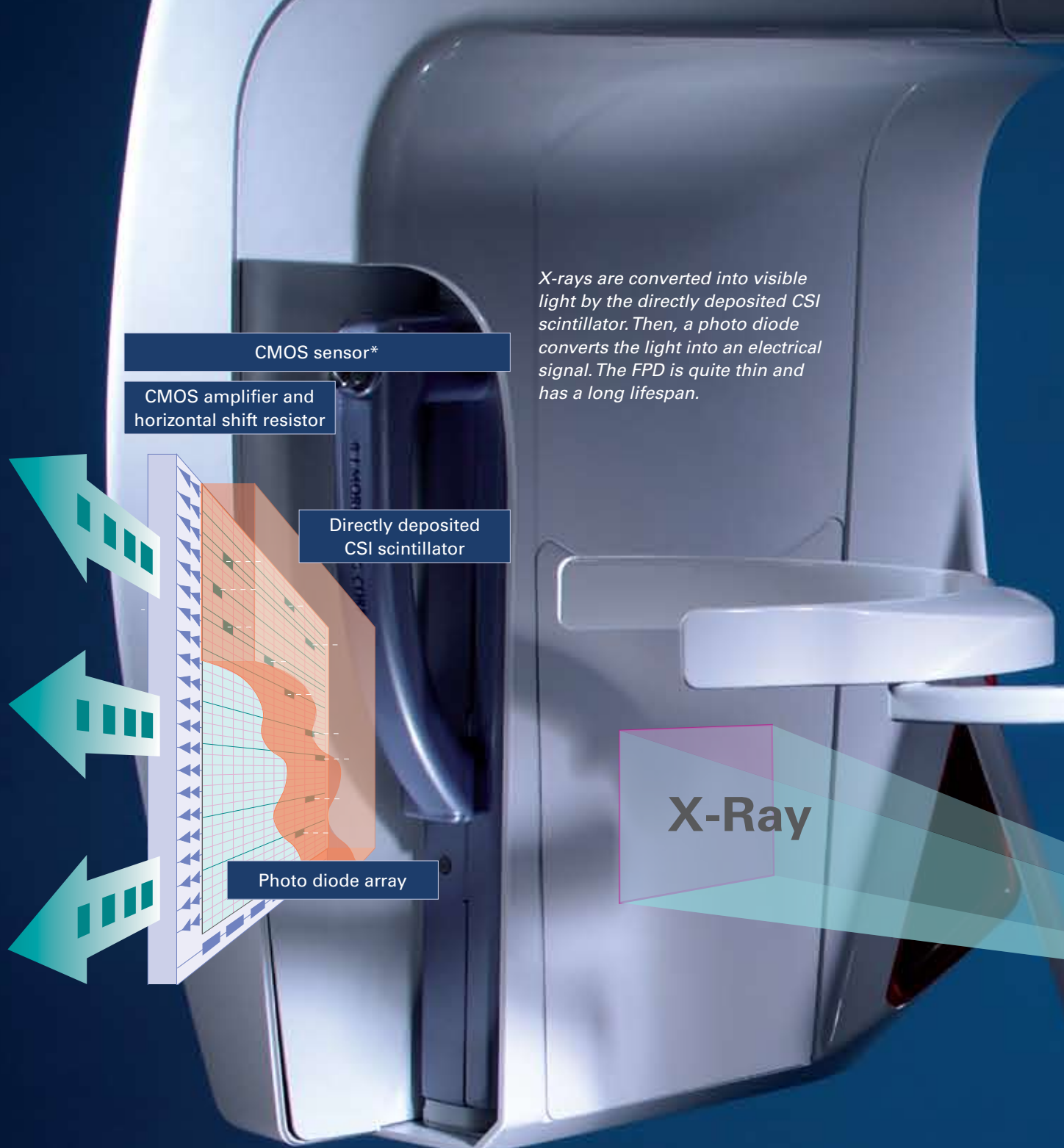


The right lower third molar is impacted and inclines lingually.

The course of the mandibular canal is clearly visible.

Ø 40 x H 80 mm
80 kV, 6 mA

A special thank you is extended to Drs. James E. Bollinger, Ana Luisa Berrocal Dominguez, Ryan C. Stoops, and Roger K. Warren for contributing clinical cases published in this brochure.



X-rays are converted into visible light by the directly deposited CSI scintillator. Then, a photo diode converts the light into an electrical signal. The FPD is quite thin and has a long lifespan.

CMOS sensor*

CMOS amplifier and horizontal shift resistor

Directly deposited CSI scintillator

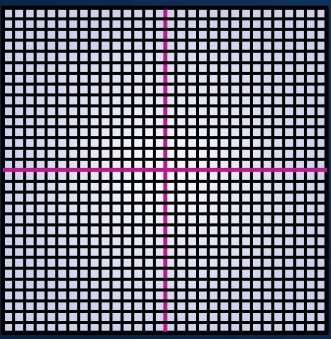
Photo diode array



No Image Distortion

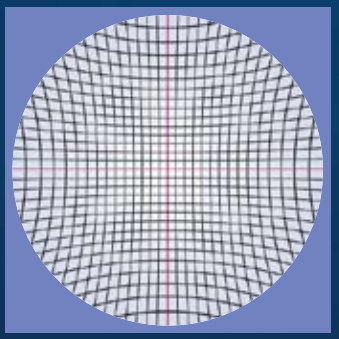
The image receptor is flat, so the X-ray projection image is received without image distortion. Unlike analog systems, no software-based correction is needed for the projection images.

Projection image of a digital system (FPD)



Projection image of an analog system

In analog radiographs, distortion of the grid may be seen when moving away from the center. With digital FPD radiographs, there's no image distortion – even at the most distant areas from the center – there is no need for software to adjust for distortion.

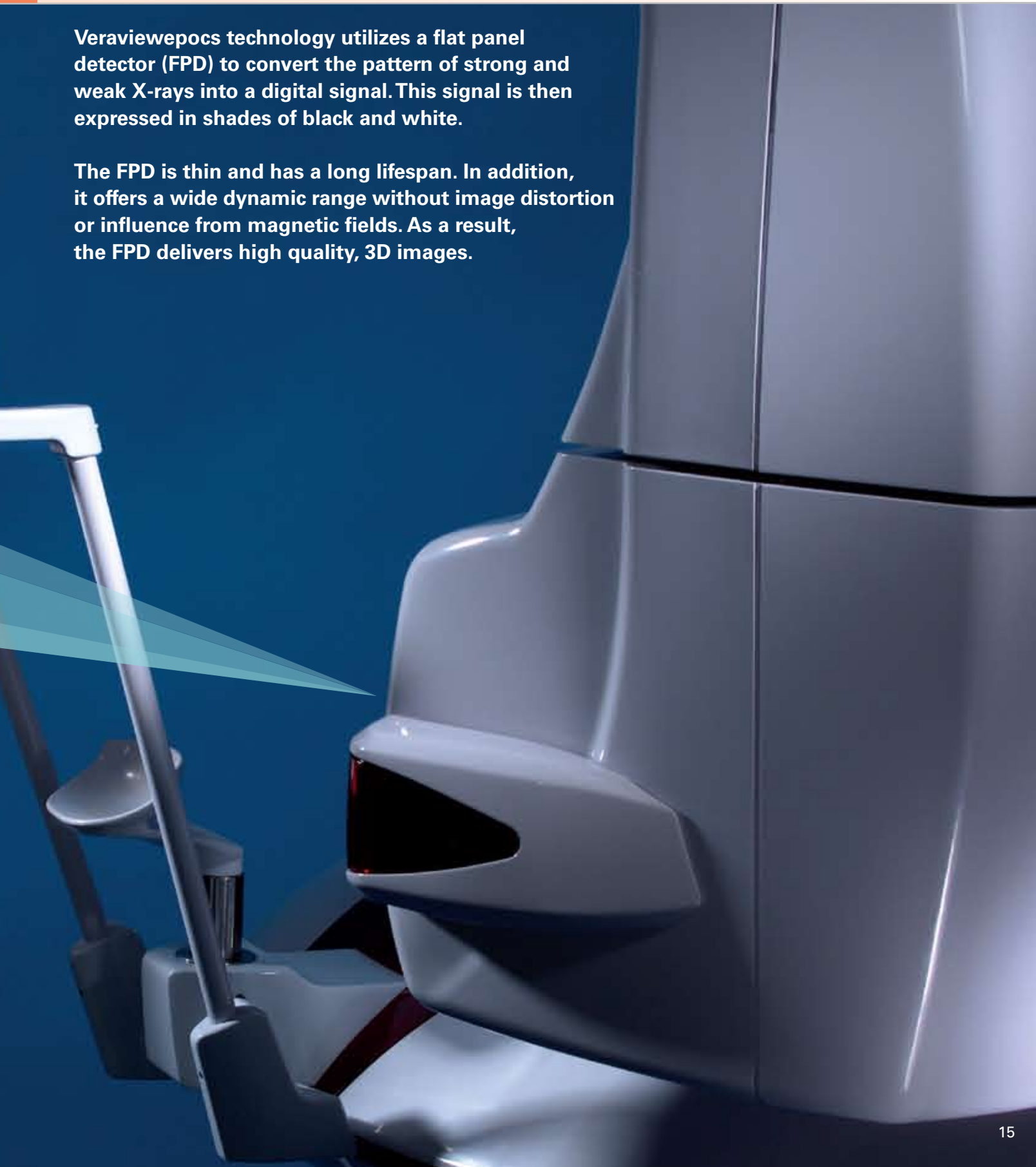


*The CCD (Charge Coupled Device) and CMOS (Complementary Metal Oxide Semi-conductor) both have a photo diode which converts the emitted rays into an electrical signal for imaging. The CCD consumes more power, but has a higher image quality; whereas the CMOS consumes less power and can read data faster.

New Flat Panel Detector Technology High Quality 3D Images

Veraviewepocs technology utilizes a flat panel detector (FPD) to convert the pattern of strong and weak X-rays into a digital signal. This signal is then expressed in shades of black and white.

The FPD is thin and has a long lifespan. In addition, it offers a wide dynamic range without image distortion or influence from magnetic fields. As a result, the FPD delivers high quality, 3D images.



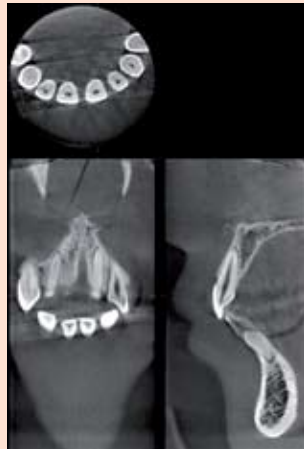
Super-High Resolution and Low Effective Dose Various Imaging Areas

The superb sensitivity and resolution of the flat panel detector (FPD) provides superior image quality for both hard and soft tissue. The largest imaging area (Ø 80 x H 80 mm) and the smallest imaging area (Ø 40 x H 40 mm)

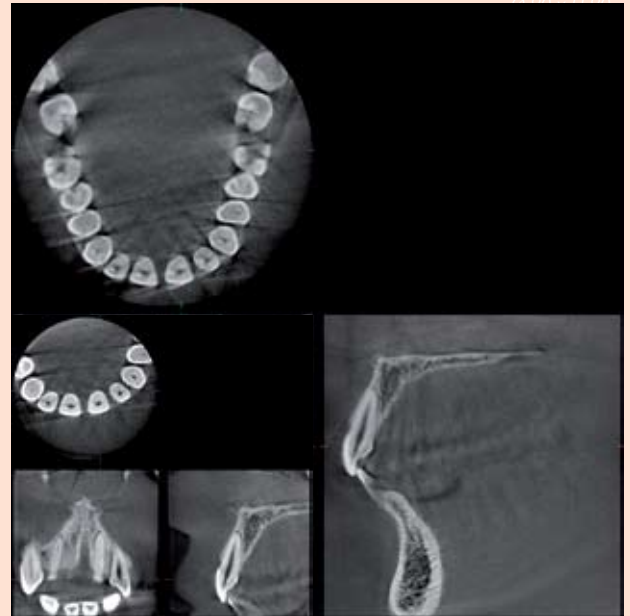
maintain the same high level of resolution. These images are perfect for a wide range of uses such as implant planning, apical lesions, TMJ evaluation, and impacted teeth.



The Ø 40 x H 40 mm area is suitable for 90% of all cases and has a lower X-ray dosage.



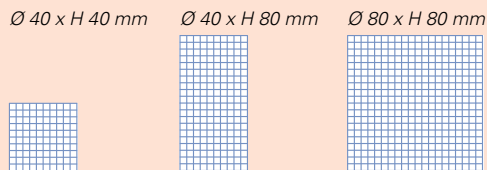
The Ø 40 x H 80 mm images are useful in determining the relationship of opposing teeth for dental implant planning, etc.



The largest imaging area, Ø 80 x H 80 mm, is useful for surgical implant guides. (Available only with Verviewepocs 3D, 80 x 80 cassette.)

Super-High Resolution for All Image Areas

The resolution of Verviewepocs is greater than 2 line pairs per mm (MTF 10%). The highly detailed images have a voxel size of 0.125 mm per side, and the slice thickness and interval can be set between 0.125 and 12.375 mm. The expanded radiographic area of Ø 80 x H 80 mm maintains the same high resolution and voxel size as the smaller fields of view.



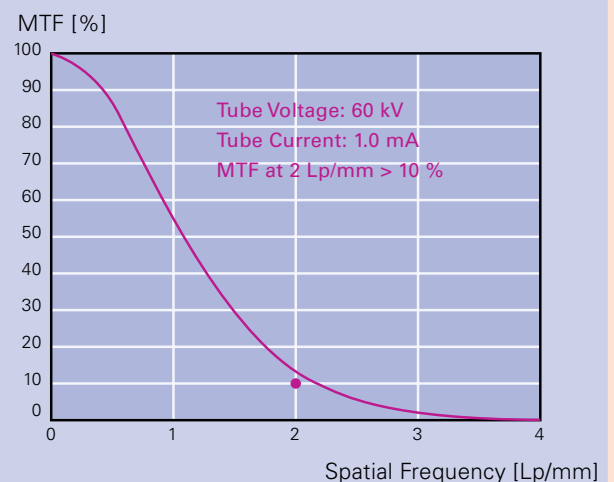
Low Effective Dose

The C-arm is rotated at 180° lowering the exposure time to a mere 9.4 seconds and the effective dose is only about 1/12* a full mouth series of film X-rays (E speed) and 1/5** the CTDIw value of a conventional CT. (Based on an actual measurement taken by Morita.)

* Effective dose is calculated in accordance with the ICRP 2007 Draft for exposure of the Mandibular Molar Region with Morita's recommended loading factor (80kV, 3mA, 9.4sec., Ø 40 x H 40 mm).

** CTDIw value measurement is made according to IEC 60601-2-44 with Morita's recommended loading factor. The comparison is to the reference CTDIw value for the maxillofacial and paranasal sinuses indicated in ICRP Pub. 87 Appendix A. (Exposure made for Ø 40 x H 40 mm)

Spatial Resolution*** MTF: Modulation Transfer Function

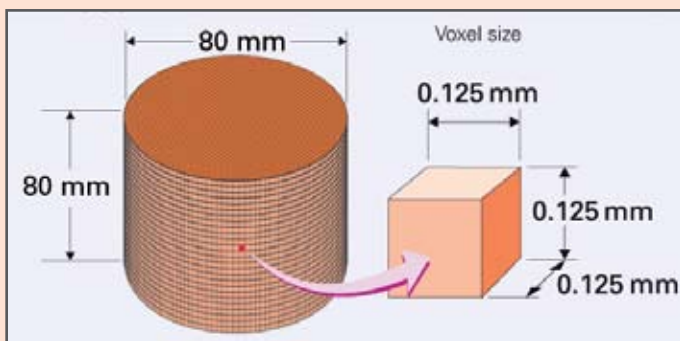


This graph is based on data from a typical product.



Radiographic Procedure

A small, cone X-ray beam irradiates the FPD for approximately 9.4 seconds while the C-arm makes one 180° rotation around the region of interest. The accurate raw images, which correspond to the angle of the C-arm, are transferred to the computer connected to Veraviewepocs and are digitalized. After post-processing, a reconstruction algorithm generates super high resolution 3D images and displays them on the computer monitor.

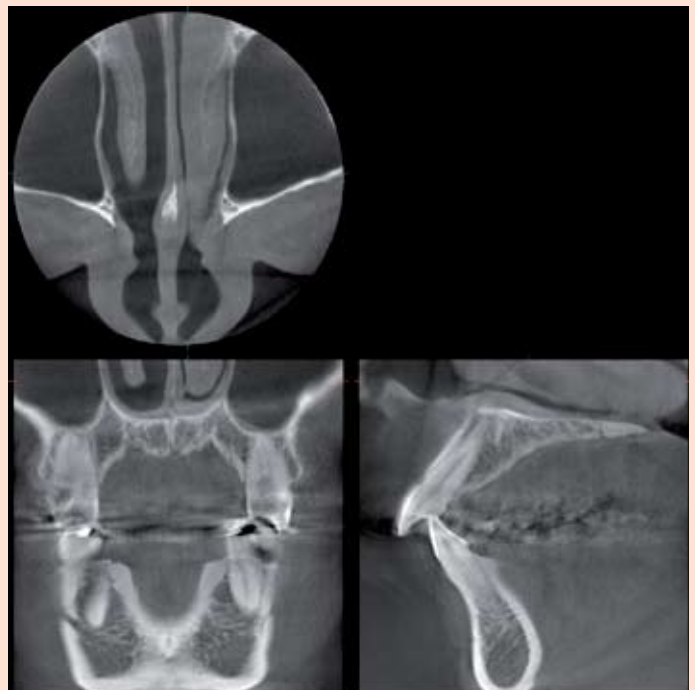


Voxel: Minimum unit for 3D data. The voxel is an isotropic cube that provides a highly detailed, artifact-free image.

Wide Dynamic Range****

A wide dynamic range produces many grayscale shades for visualizing both hard and soft tissue areas. The FPD uses 13-bit technology which produces a subtle spread of contrast.

Creates very high quality radiographs of soft tissue areas (such as the mucous membrane of the maxillary sinus and skin, etc.) as well as hard tissue areas (such as enamel, dentin, and alveolar bone).



*** Spatial resolution refers to how distinct an image appears the smaller it becomes; it measures the fineness of an image. Spatial frequency is the unit of measurement of line pairs per distance (mm). As the map scale decreases, the patterns of contrast become harder to see. This is known as MTF (Modulation Transfer Function). It represents the number of line pairs per 1 mm that can be distinguished based on contrast. It is said that humans can only differentiate about 10%.

**** Dynamic range: Numerical values express the reproducibility of the signal and the ratio of the largest and smallest input values in dBs. The dynamic range of the digital signal is also sometimes expressed in bits. The highest signal level is taken to be the level remaining after subtracting the noise level. The value of the dynamic range indicates how weak of a signal can be reproduced - or, in other words, how high the contrast resolution will actually turn out to be.

Easy Positioning for 3D Images – High Resolution Panoramic, Bi-directional Scout, and Laser Beams

Veraviewepocs offers flexibility in positioning methods. The region of interest can be positioned by the panoramic image, the bi-directional scout, or the 5 positioning laser beams.



Panoramic Image with Scout Feature*

Before taking a 3D image, a high resolution panoramic exposure is released to target the region of interest on the PC monitor. Then, the C-arm will automatically move into the optimum patient position to get 3D images at the center of the region of interest.



Bi-directional Scout

After initial positioning is accomplished by the 3 positioning laser beams, bi-directional still X-ray images can be taken to confirm that the position is accurate. If it is not, simply adjust the position of the image on the computer by placing the cursor at the center of the region of interest.



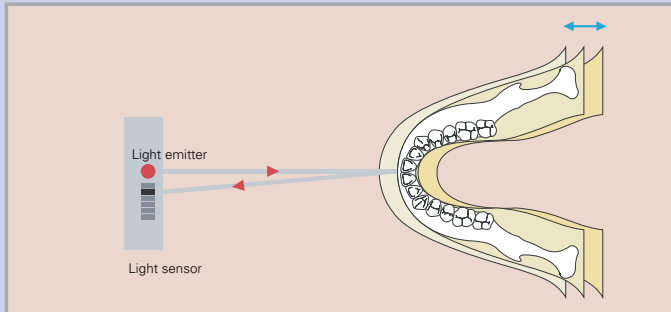
Direct Positioning with 5 Laser Beams

5 positioning laser beams set the patient's position and align the region of interest. First, the patient's initial position is set using the 3 laser beams. Then, 2 additional laser beams are aligned to the region of interest. The C-arm will automatically move to the right position.

* Not applicable to Veraviewepocs 3D 80 x 80 cassette

Easy Positioning for Panoramic Images AF, Power-Assisted Movement, and 3 Laser Beams

Easy, optimal patient positioning made possible with innovative technology.



AF Auto Positioning

A light beam sensor automatically positions the unit without requiring the patient to move. The light beam sensor measures the distance to the patient's teeth, then the arm automatically moves into the optimal position. This process produces images with a high degree of reproducibility.



Power-Assisted Movement: C-arm is Lined Up to the Patient

The electric motor of Veraviewepocs enables convenient lift movement for smooth slow-starts and slow-stops. It is equipped with an automatic overload stop function for safety. In addition, the C-arm is lined up to the patient for easier patient positioning. Since the arm moves back and forth to line up with the patient, the patient doesn't have to move and can maintain a comfortable posture.

3 Laser Beams for Accurate Positioning

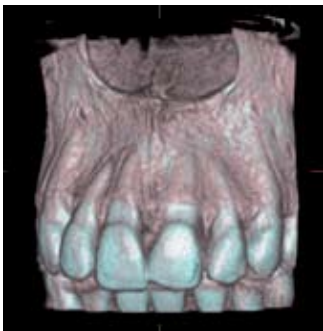
To ensure accuracy, the patient's initial position is checked with 3 laser beams: the Frankfurt Horizontal beam, the sagittal-plane beam, and the image-layer beam.



Easy Image Processing in the Workplace Intelligent Volume Rendering



Multiple image processing functions allow the i-Dixel volume rendering software to display a variety of helpful information, including both 3D and 2D data. The software is seamlessly integrated into any network environment.



Volume Rendering

Veraviewepocs volume rendering technology allows the display of three dimensional images. Depending on the area of interest, histograms can be adjusted and settings can be changed to obtain high definition 3D images of both soft and hard tissue areas.



Real-Time Reslice

Volume rendering images and slice images are linked in real time. Simply drag on the volume or slice images to obtain additional slice images or to alter the observation angle.

DICOM Support

i-Dixel supports DICOM standards and can be seamlessly integrated into a clinic network environment. DICOM, Digital Imaging and Communications in Medicine, creates and maintains an international standard for image data communication and storage to achieve compatibility between various information systems in health care environments. DICOM enables the exchange of diagnostic images, examination data, and other relevant information regardless of the manufacturer or model of the medical imaging systems involved. It also supports the system architecture link to HIS/RIS.

i-Dixel Offers

1. Modality worklist management service class
2. Storage service class
3. Modality-performed procedure step service class
4. Print management service class

One Data Viewer Software

One Data Viewer is a unique Morita software feature that allows the viewing of 3D images on any computer without installing special software. One Data Viewer files are executable files exported from i-Dixel. Data files, including 3D images and patient data, can be taken from anywhere and viewed on any computer within the clinic network. The software includes functions to measure distances and angles, zoom in and out, invert the grayscale, and adjust brightness, contrast, and gamma.

Viewer Software

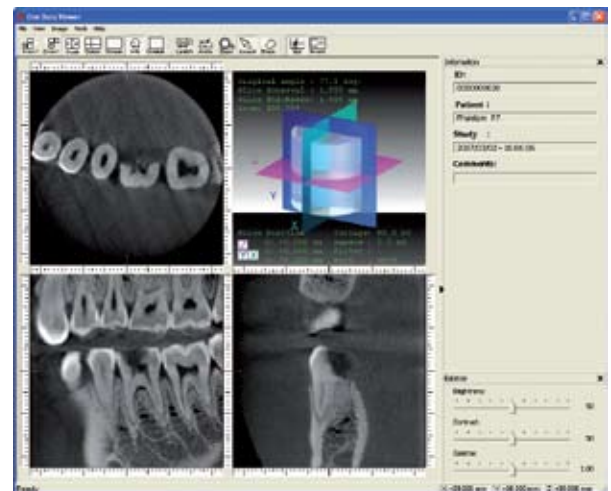
By installing i-Dixel Viewer software on external clinic computers, all i-Dixel features can be utilized.

One Data Viewer Ex

Simply move the XYZ cursor to see the corresponding 3D slices.

One Data Viewer Plus (Optional)

This option adds image adjustment and measurement functions to the One Data Viewer Ex function.



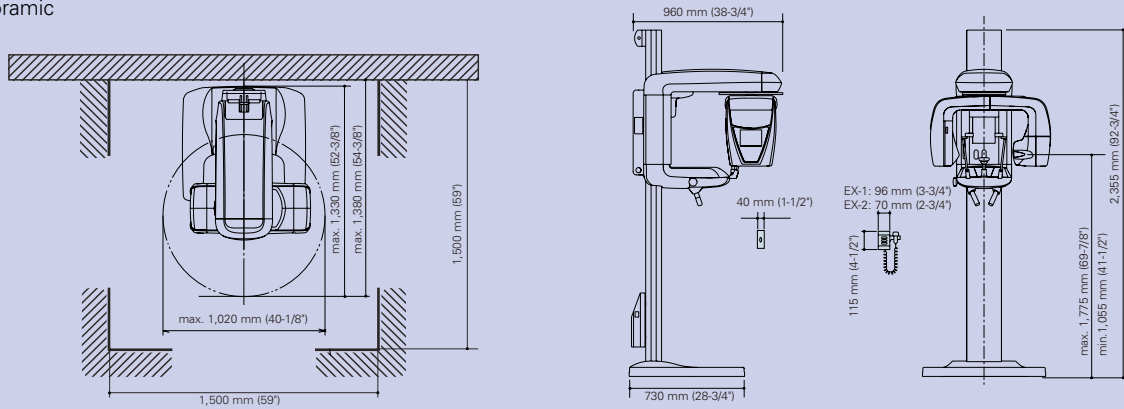
Other Key Features

- XYZ view windows
- Reslice, zoom & rotate
- Histogram
- Edge enhancement
- Distance & angle measurement
- Reverse image & mirror image
- Slice distance measurement
- DICOM 3.0 compliant
- Density control
- Spatial frequency filtering
- Patient orientation display
- Density measurement

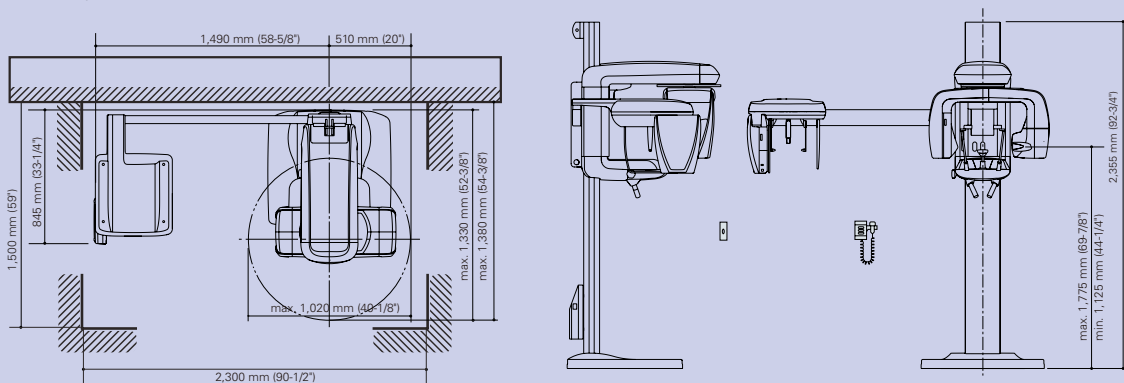
Specifications/Dimensions

Machine Dimensions & Suggested Operating Space Requirements

Veraviewepocs 3D & 3De
Panoramic



Veraviewepocs 3D & 3De
Panoramic/Cephalometric



* Veraviewepocs should be anchored to a concrete wall and floor.

Compact



The dimensions of Veraviewepocs are the same as a standard panoramic/cephalometric unit, so it requires a small amount of space.

Wheelchair Accessible





Veraviewepocs offers a width of up to 18.9" (480 mm) to accommodate patients in wheelchairs. For patients with a wheelchair span greater than 18.9", there is wall-mounted version available.



Technical Specifications Veraviewepocs 3D

	Panoramic/3D Image	Panoramic/Cephalometric/3D Image
		
Trade name	Veraviewepocs 3D	
Model	X550	
Type	A4 Veraviewepocs 3D 40 Pan A8 Veraviewepocs 3D 80 Pan	B4 Veraviewepocs 3D 40 Pan/Ceph B8 Veraviewepocs 3D 80 Pan/Ceph
Input voltage	EX-1: AC 120V 60 Hz, EX-2: 220/230/240 V 50/60 Hz	
Power consumption	2.0 kVA	
X-ray generator		
Tube voltage	60–80 kV	
Tube current	1–10 mA	
Effective focal spot	0.5 mm	
Panoramic image		
Exposure time	Fine high-speed mode approx. 7.4 seconds, superfine mode approx. 15 seconds	
Mag. ratio	1.3, 1.5, 1.6	
Positioning	Electric motor and auto focusing optical distance sensor	
Cephalometric image		
Imaging area	—	LA 225 x 254 mm, PA 225 x 203 mm
Magnification ratio	—	1.1
3D image		
Exposure time	Approx. 9.4 seconds	
Size of imaging area	Diameter 40 x Height 40 mm; Diameter 40 x Height 80 mm; Diameter 80 x Height 80 mm	
Emission switch	Deadman type	
Dimensions		
Main unit	W 1,020 x D 1,330 x H 2,355 mm (W 40-1/8" x D 52-3/8" x H 92-3/4")	W 2,000 x D 1,330 x H 2,355 mm (W 78-3/4" x D 52-3/8" x H 92-3/4")
Control box	EX-1: W 96 x D 40 x H 115 mm — (W 3-3/4" x D 1-1/2" x H 4-1/2"), EX-2: W 70 x D 40 x H 115 mm — (W 2-3/4" x D 1-1/2" x H 4-1/2")	
Installation area	14.5 sq. ft. (1.35 m ²)	28.0 sq. ft. (2.60 m ²)
Weight	Approx. 190 kg (418 lb.)	Approx. 258 kg (568 lb.)

Cassette Type

Type of cassette	Possible image				
	3D Image			Pan	Ceph
	80 x 80	40 x 80	40 x 40		
80 x 80 	x		x		
Multi-function 		x	x	x	
Pan/Ceph 				x	x
Pan 				x	

Imaging Program

Panoramic		Magnification ratio
Standard Panoramic	Standard, orthoradial, and shadow reduction	1.3 constant & 1.6 constant
Pedodontic Panoramic	Standard, orthoradial, and shadow reduction	1.3 constant & 1.6 constant
Maxillary Sinus Panoramic	Anterior and posterior	1.5 constant
TMJ 4 views	LA and PA	1.3 constant

- Refer to the Veraviewepocs 2D brochure for more details on panoramic/cephalometric images.
- A portion of the clinical images are provided by Kitasenju Radist Dental Clinic, i-View Imaging Center, Japan, and the Department of Dentomaxillofacial Radiology at University of Leipzig, Germany.
- X-ray protection should be provided for the patient when X-rays are emitted.
- X-ray cassettes should be handled very carefully.
- Design and specifications are subject to change without notification.

Technical Specifications Veraviewepocs 3De



	Panoramic/3D Image	Panoramic/Cephalometric/3D Image
		
Trade name	Veraviewepocs 3De	
Model	X550	
Type	Veraviewepocs 3De Pan	Veraviewepocs 3De Pan/Ceph
Input voltage	EX-1: AC 120V 60 Hz, EX-2: 220/230/240 V 50/60 Hz	
Power consumption	2.0 kVA	
X-ray generator		
Tube voltage	60–80 kV	
Tube current	1–10 mA	
Effective focal spot	0.5 mm	
Panoramic image		
Exposure time	Fine high-speed mode approx. 7.4 seconds	
Mag. ratio	1.3, 1.5, 1.6	
Positioning	Electric motor and auto focusing optical distance sensor	
Cephalometric image		
Imaging area	—	LA 225 x 254 mm, PA 225 x 203 mm
Magnification ratio	—	1.1
3D image		
Exposure time	Approx. 9.4 seconds	
Size of imaging area	Diameter 40 x Height 40 mm; Diameter 40 x Height 80 mm	
Emission switch	Deadman type	
Dimensions		
Main unit	W 1,020 x D 1,330 x H 2,355 mm (W 40-1/8" x D 52-3/8" x H 92-3/4")	W 2,000 x D 1,330 x H 2,355 mm (W 78-3/4" x D 52-3/8" x H 92-3/4")
Control box	EX-1: W 96 x D 40 x H 115 mm — (W 3-3/4" x D 1-1/2" x H 4-1/2"), EX-2: W 70 x D 40 x H 115 mm — (W 2-3/4" x D 1-1/2" x H 4-1/2")	
Installation area	14.5 sq. ft. (1.35 m ²)	28.0 sq. ft. (2.60 m ²)
Weight	Approx. 190 kg (418 lb.)	Approx. 258 kg (568 lb.)

Image Type					Imaging Program		
Unit	Possible Image				Panoramic		Magnification ratio
	3D Image		Pan	Ceph			
	40 x 40	40 x 80					
Veraviewepocs 3De Pan	x	x	x		Standard Panoramic	Standard, orthoradial, and shadow reduction	1.3 constant & 1.6 constant
Veraviewepocs 3De Pan/Ceph	x	x	x	x	Pedodontic Panoramic	Standard, orthoradial, and shadow reduction	1.3 constant & 1.6 constant
					Maxillary Sinus Panoramic	Posterior	1.5 constant
					TMJ 4 views	LA and PA	1.3 constant

* Refer to the Veraviewepocs 2D brochure for more details on panoramic/cephalometric images.

* A portion of the clinical images are provided by Kitasenju Radist Dental Clinic, i-View Imaging Center, Japan, and the Department of Dentomaxillofacial Radiology at University of Leipzig, Germany.

* X-ray protection should be provided for the patient when X-rays are emitted.

* Design and specifications are subject to change without notification.

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