At MyRay, we believe that it is not just a question of including as much technology as possible in a medical device; the primary objective is to make that device as effective as possible, so that the end-user will immediately benefit from what the technology has to offer, in terms of performance and quality. The complete MyRay product range includes high-frequency X-ray units, wireless digital sensors, panoramic imagers, intraoral cameras, curing lights, CB3D imaging systems and dedicated software. Creative solutions providing new levels of comfort and the best available technologies for image-assisted diagnostics: instruments designed for those looking for innovation and speed, design and performance.

Zen-X
Digital X-ray sensor

X-pod
Wireless Digital System

Hyperion MRT
Panoramic imager

SkyView
3D panoramic imager

RXAC
X-ray unit

eXTend
High frequency X-ray unit

HyperSphere+
High frequency X-ray unit

iRYS
Imaging Software

myray
new comfort
in digital imaging

www.my-ray.com

MX9EGB141S00   05/2014   Data subject to change without notice.

CEPH**3D**PAN

MORE THAN MEETS THE EYE

hyperion x9

myray
new comfort
in digital imaging

CHOOSE TOMORROW, USE TODAY

hyperion X9

Whatever you are planning, be it today's clinical examination or tomorrow's requirements, HYPERION is the all-inclusive answer to the principal diagnostic imaging needs in the dental surgery.
The X9 series is a modular concept which covers all aspects from 2D panoramic imaging, through cephalometric exams up to cone beam 3D with true full arch volumetric scan capability.

Choose 1, choose 2 or choose all 3.

HYPERION is an integrated multiple platform, so even if you just take the panoramic imager today, you can upgrade as far as the 3 in 1 solution at any time in the future.
HYPERION is an investment which makes long-term sense.Faithful in every aspect to the philosophy which embraces all MyRay products, HYPERION is a technologically advanced system housed in a user-friendly platform, designed as the fastest way to obtain clinically superior diagnostic exams. Simple workflow, superior results.

AS FLEXIBLE AS YOU ARE

The beauty of an open platform today is that you can upgrade at any time tomorrow. If all you currently require is a high-quality panoramic imager, the HYPERION X9 provides you with a comprehensive range of standard and specialised 2D examinations.

Nothing stands in your way when you plan to add cephalometric options to your system or as soon as your practice is ready for volumetric 3D radiography. All additional features that can be integrated into the X9 platform are field upgradable.

Moreover, each upgrade you may choose will have little or no impact on your operating hours. Including the full calibration procedure, an upgrade (even to 3D status) will result in no more than 2 hours downtime.

Enhance your diagnostic capabilities

HYPERION can be installed in **12 different configurations**, all ready to evolve around flexible core technologies and ready to provide you with the right solution every step of the way. Built as a true hybrid concept, each upgrade will enhance an aspect of diagnostic performance and implement an improvement in the specific area you require.

Hybrid; a composite of specific technologies

Each technology combines to provide a **unique platform** enabling you to perform 2D or 3D diagnostics. HYPERION X9 is not designed around one predominant imaging mode. It performs according to your needs. Each constituent technology has been developed to ensure the best possible results in that field.

3 in1

Panoramics from A to Z

An extensive range of bidimensional examinations also covering specific requirements such as orthogonal projections, bitewing exposures, advanced TMJ views.

Cephalometrics is less than a sensor away

To perform cephalometric projections, you can opt for a second sensor, but you are not obliged to because MyRay has also considered offering the relocatable option. By opting for just one sensor, this can be switched to and from the ceph arm and incorporates a no-risk safety device to prevent it being dislodged accidentally.

CB3D radiography

A straightforward upgrade to volumetric examinations is a no more than a step away from your initial purchase. With 3D capability, one scan generates a wealth of data taking you into a wider realm of diagnostic imaging.

TRUE FULL ARCH CAPABILITY

One of the most important features of hybrid multidimensional dental imaging equipment with 3D capability is the field of view (FOV). Whereas small FOV are suitable for localised diagnostics, a full arch volumetric scan of typical adult dentition is only technically possible with an adequate FOV. For this simple yet paramount reason, HYPERION X9 scans with a Ø 11 cm FOV. There's no point running a full arch scan if it's not complete.
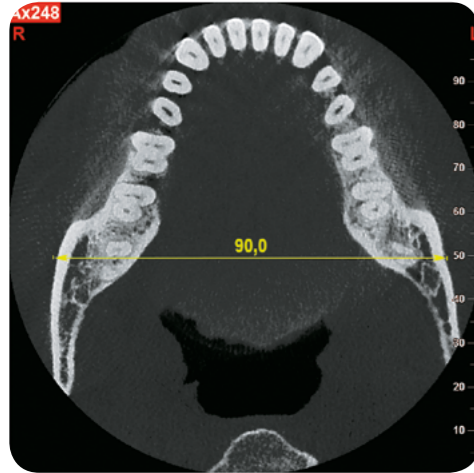
Clinical conditions prove the need for full arch capability
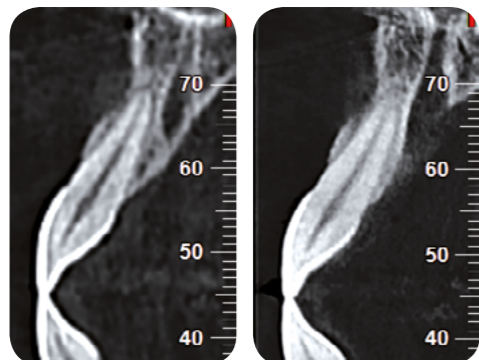
This is a in-vivo radiograph of an adult male, average build, with an axial slice at the height of mandibular molar roots.
Note that the distance between left and right third molars, including their roots, the alveolar process and the surrounding cortical bone, is at least 9 cm.
In real clinical conditions such as this, any scan with a less than Ø 10 cm FOV would not include the full arch, with a substantial risk that some data will always be missing.

Reduced FOV for specific needs
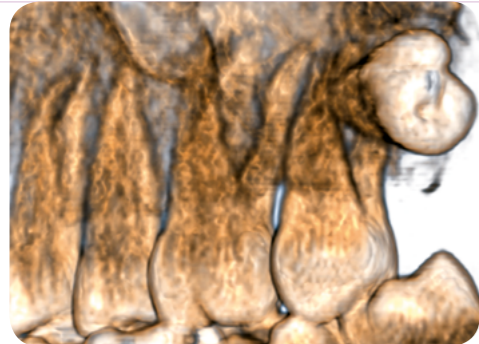
Proper adjustment of the FOV means your patients receive considerably lower X-ray doses.
A reduced FOV is recommended for full arch scans of children's upper and lower jaws.
A 5 x 5 cm Ø FOV is suitable for localised diagnostic requirements, as in the case of single implant planning, certain endodontic procedures or third molar extractions.

High resolution, low emission

HYPERION X9 offers two different volumetric scan modes for each FOV. Premium quality diagnostic images with sharp definition and remarkable detail are achieved in 75µm voxel peak resolution with 9 seconds exposure time. Exposure time is limited by pulsed mode emission.
A high resolution image is obtained with an exceedingly low radiogenic dose, thanks to pulsed mode exposure totalling a mere 3.6 seconds.
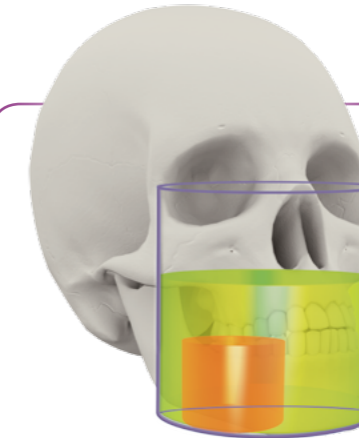
High resolution   Peak resolution
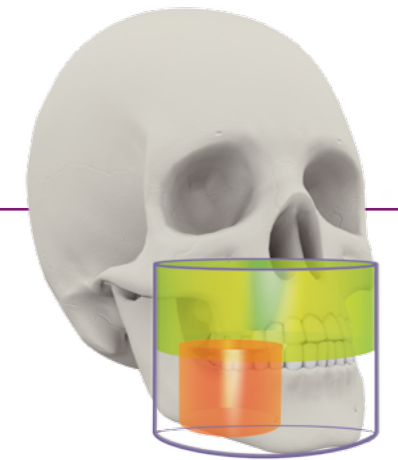
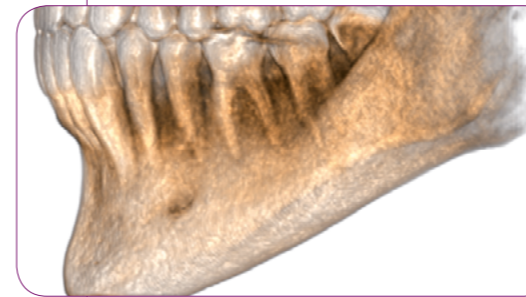| SMALL CB3D IMAGE DETECTOR	
ø cm	height cm
11	8*
11	5
8	5
5	5

*Extended View
This extended FOV is obtained via a single acquisition with dual exposure times.

| LARGE CB3D IMAGE DETECTOR	
ø cm	height cm
11	13*
11	8
8	8
11	5
8	5
5	5

Multiple FOV

Each FOV is suited to a specific need.
HYPERION X9 can be fitted with either a large or a small image detector.
This choice will determine the height of the 3D scans you make, as indicated in the tables above.
If the height of the examined region is set to 5 cm, the investigation will be suitable for analysis of the dentition covering the upper or lower jaw bone and the occlusion level.
The diameter of the examined region can be set from a minimum of 5 to a maximum of 11 cm.
This ensures inclusion of third molars and their surrounding bone structure, allowing you to plan multiple implants, also with the use of surgical drilling guides.
If the height of the examined area is extended to 8 cm simultaneous scanning of both upper and lower jaw is possible.
Extending the FOV further to 13 cm also makes it possible to acquire the maxillary sinuses.
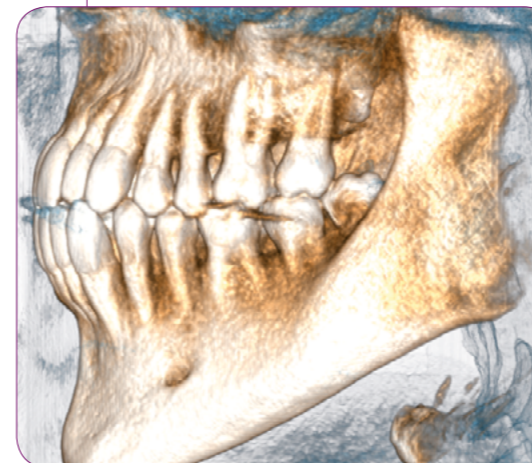
OUR PRIMARY FOCUS, OUTSTANDING CLINICAL IMAGES

Everything needs to come together to give you the best possible diagnostic material in terms of clinical images. HYPERION makes this happen both for 2D and 3D imaging via a combination of key factors, all of which are easily implemented thanks to MyRay's extensive understanding of dental radiography.
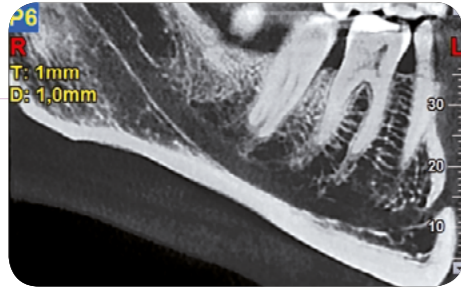
Slice from volumetric data.
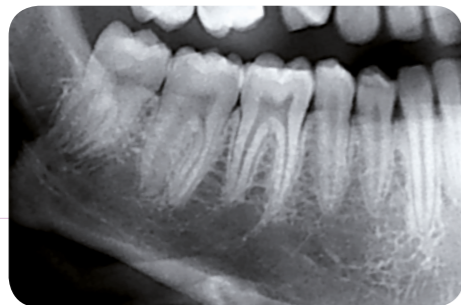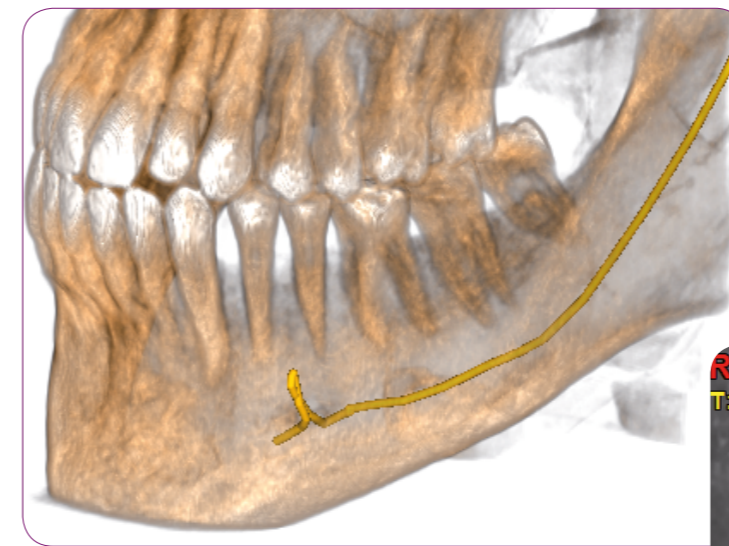

Bi-dimensional projection.

3D rendering.

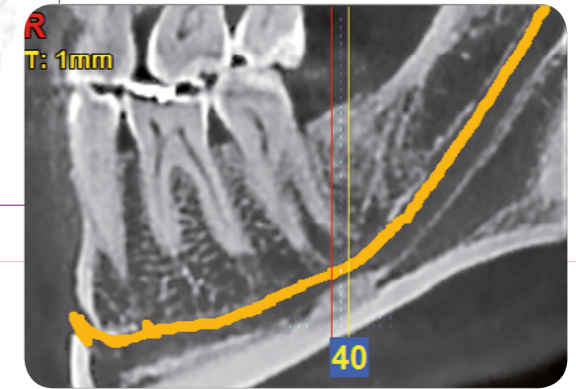Accurate identification of mandibular canal.

360° scan

Volumetric acquisition is based on a full 360° scan which is by far the best way to eliminate artefacts from the resulting image.

The right sensor for each requirement

Nothing is left to chance when the right technology is at hand. Dedicated 14-bit image detectors for 2D imaging and 16-bit Amorphous Silicon detectors for 3D scans ensure the sharpest of images thanks to a specific dynamic range for each imaging modality.

Accuracy above all

HYPERION X9 uses a constant potential (90kV – DC) generator, which also operates in pulsed mode for 3D imaging. Unnecessary radiation is kept to a minimum, while no shortcuts are taken to provide accurate radiographic results with superb 75µm voxel resolution.

Steadiness first

A rigid positioning system with no less than 7 support points, including a chin rest, an adjustable forehead support and a replaceable bite block, ensures constant stability during the scan, an essential pre-requisite for sharp volumetric images.
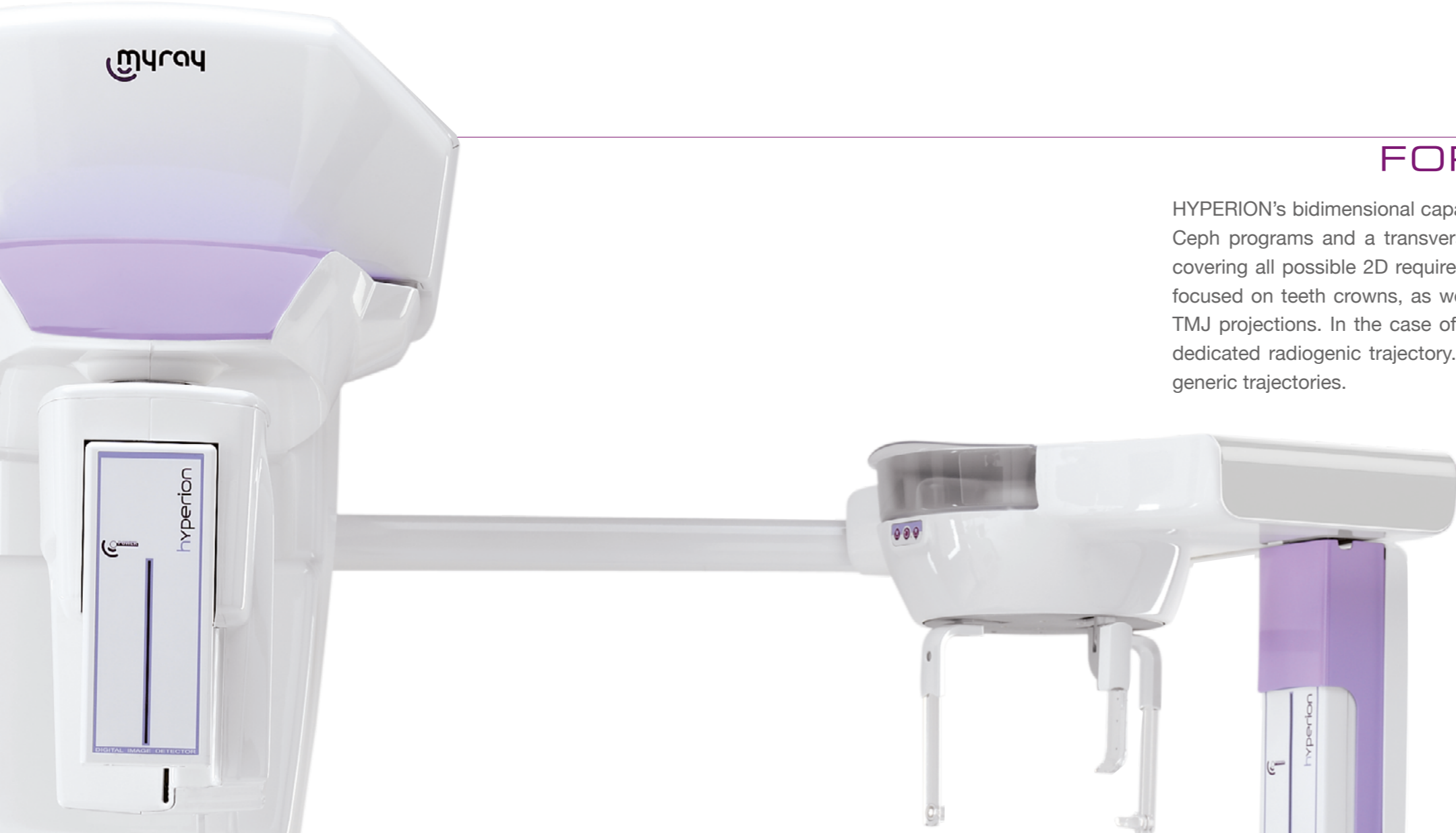
Comfort: outstanding ergonomics and conscientious design

Thanks to the innovative positioning system, designed to maximise comfort for both patient and operator, the former can be aligned using a highly flexible procedure that involves just a few simple steps, thus ensuring examinations are carried out correctly whatever the projection.

HYPERION's bidimensional capabilities comprise panoramic programs, TMJ and sinus programs, Ceph programs and a transversal slicing application. A total of 40 different examination types covering all possible 2D requirements, including Orthogonal projections and Bitewing exposures focused on teeth crowns, as well as Postero-Anterior projections of both TMJs and Multi-angle TMJ projections. In the case of each single program, radiographic data acquired is based on a dedicated radiogenic trajectory. This means optimised data, not cropped views based on more generic trajectories.

12 Panoramic Examinations
- Standard Panoramic and Reduced Panoramic for children
- Panoramic with wider focal trough in anterior region
- **Orthogonal projection** for dentition only, to reduce overlapping of crowns
- Hemi-panoramic and hemi-dentition, optimised dedicated projections
- Frontal dentition, dedicated projection with wide focal trough
- 4-segments **Bitewing** exposures limited to crowns, to detect inter-proximal caries

10 Cephalometric Examinations
- Latero-Lateral Ceph projections, selectable length of 18 to 30cm
- Latero-Lateral Ceph projection, short scan reduced in height for children, reduced X-ray dose
- Antero-Posterior or Postero-Anterior Ceph projections
- Submentovertex projection, including Waters and reverse Towne positions
- Carpus projection

14 TMJ Examinations (open or closed mouth)
- Lateral projection of both TMJs
- **Postero-Anterior** projection of both TMJs
- **Multi-angle** (x3) Lateral projection of one TMJ
- Multi-angle (x3) Postero-Anterior projection of one TMJ

3 Maxillary Sinus Examinations
- Frontal or Lateral view of Left and Right maxillary sinuses

1 DTS
- Dynamic Transversal Slicing, orthogonal to the panoramic focal trough
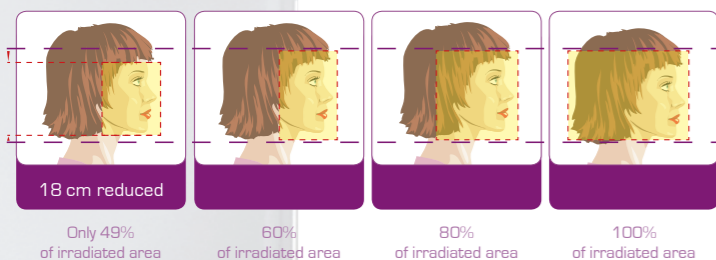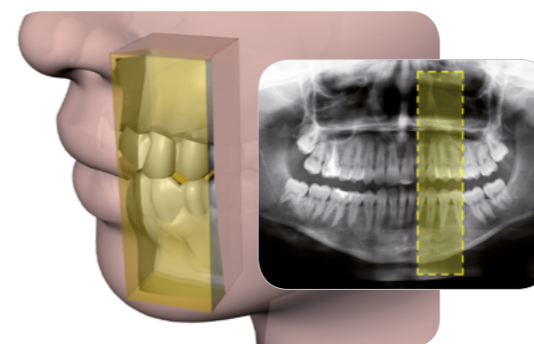
Advanced kinematics

Specially synchronised kinematics made up of one rotary movement combined with two simultaneous translatory movements ensures constant magnification in all projections, thus leading to highly reliable diagnostic images. Simple kinematics with just one translatory movement would result in uneven magnification.

Hyperion: 1 rotary movement and 2 simultaneous translatory movements.

high-end competitor: 1 rotary movementand 1 simultaneous translatory movement only.

constant magnification

uneven magnification
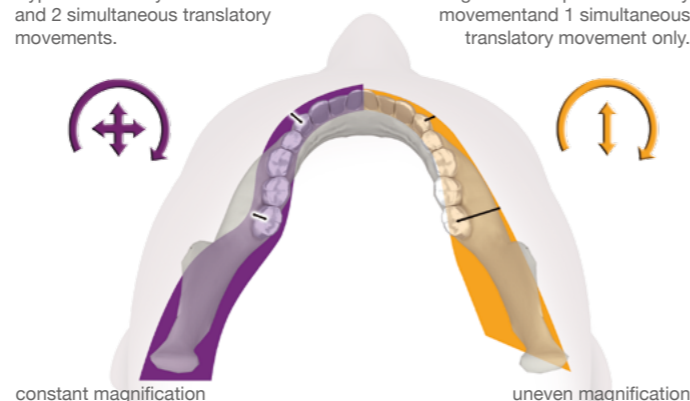
The focal trough adapts to morphology and misses out on none of the vital details. The simultaneous translatory movements keep the X-ray detector at a constant distance from the midline of the dental arch, throughout the entire scan, so that the image magnification is constant and uniform in the resulting radiograph.

18 cm reduced

Only 49% of irradiated area

60% of irradiated area

80% of irradiated area

100% of irradiated area

Clever collimators

The primary servo-controlled collimator allows you to select the appropriate area for X-ray exposure. This makes it possible to minimise radiation whenever possible. The secondary collimator is concealed within the rotating module, allowing more space for both operator and patient.

Dynamic Transversal Slicing (DTS)

DTS provides a host of cross-sections of a specific region of the upper and lower arch, particularly useful when conducting a preliminary examination of implant sites. Data can then be explored on a PC screen, viewing the orthogonal cross-sections sequentially. Slice by slice browsing and simulations with virtual implant templates enable you to navigate all cross-sections and make sure everything fits.

Examine a region of interest measuring up to 4 x 4 x 10 cm and take 1:1 scale measurements with 0.15 mm pixel precision.

FACE TO FACE

Getting face-to-face with your patient is certainly not the case with a large number of panoramic imagers on the market. There are no walls, panels or mirrors on HYPERION. What the patient sees during exam positioning is you and your smile. No claustrophobic feelings to make them anxious and fidgety. On the contrary, your patient is more likely to feel at ease and be more collaborative, which speeds up the process and leads to better all-round results.

Laser-guided positioning

Thanks to laser guides, lining up the patient is fast and precise. Everything aims at reducing the unnecessary time spent getting ready for the examination.
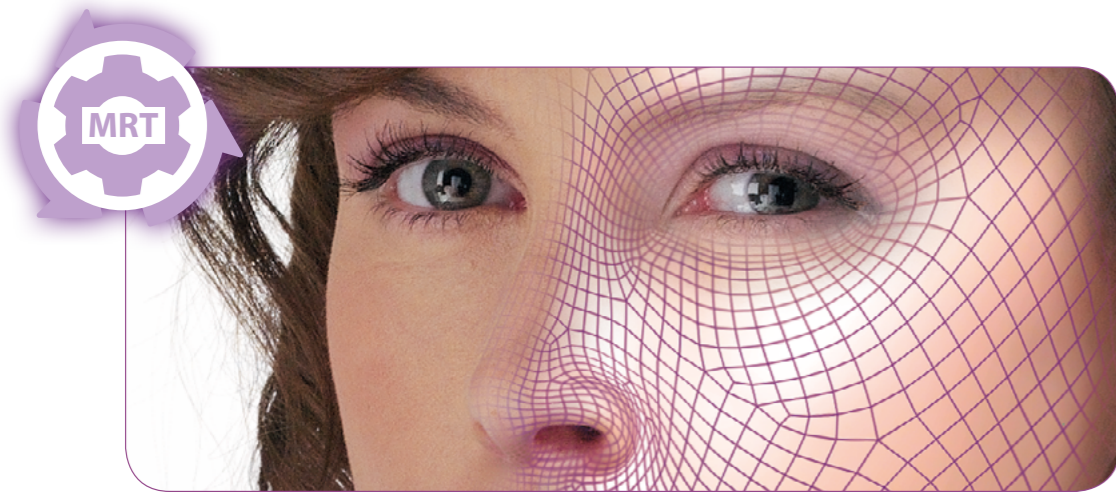
- 4 laser positioning guides for 3D and 2D projections;
- 1 laser positioning guide for teleradiographic projections
  (Frankfurt Plane).

Reassuring eye contact with the operator helps a patient achieve a stable, yet relaxed position, ready for the scan.
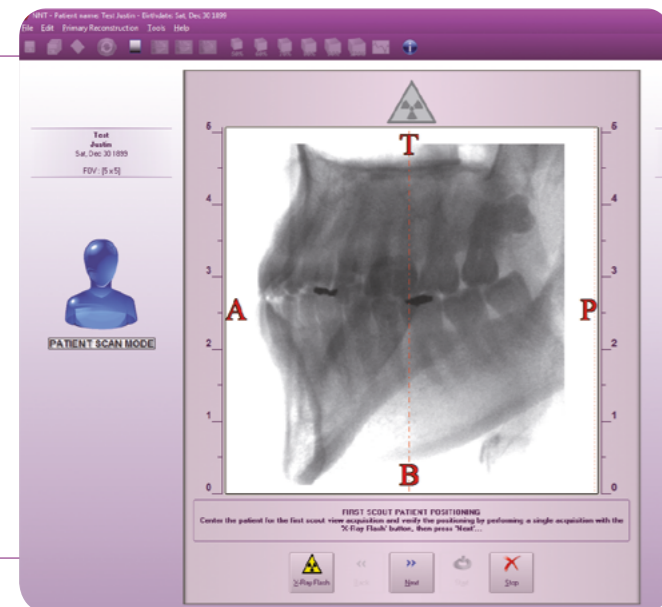
MAKING ACQUISITION AN EASY
STEP-BY-STEP PROCEDURE

State-of-the-art technology is fine, but the ultimate factor is your efficiency in using it that determines your success. At each step of the way we aim to make your workflow as smooth and simple as possible, either through a user-friendly interface, purpose-oriented software or pre-acquisition tools to guide you to the results you need. MyRay aims at making workflow easy for you and your assistant.

Onboard touch screen panel

Thanks to clear graphics and straightforward controls, there is no need to spend time pushing dozens of buttons while your patient stands ready for the scan. Simplicity in all imaging modes makes for faster procedures and a more relaxed patient experience. Better workflow, better results.

Select FOV

Select upper/lower arch

Jump to Home/Favourites

Scroll program list

Store your favourite programs

Select Peak Resolution

Select a group of program

Automatic determination of exposure factors

Available for both 2D and 3D scans, innovative Morphology Recognition Technology (MRT) automatically identifies patient size and all parameters required to ensure correct X-ray exposure and therefore excellent image quality. With MRT there's no need to program exposure times, kV or mA technical factors or even choose patient size. HYPERION does it all, automatically, so you can focus on what matters the most: your patient.

Touch screen panel showing user-selected favourites

Servo-controlled chinrest up/down keys to select upper/lower arch CB3D exam

Equipment positioning reset key and dummy run command to simulate exposure

Servo-controlled adjustment of the focal trough

Servo-controlled adjustment of patient head orientation

USB port for mobile data storage

Navigate and select your settings for each exam using the easy-to-follow symbols and clear visual icons.
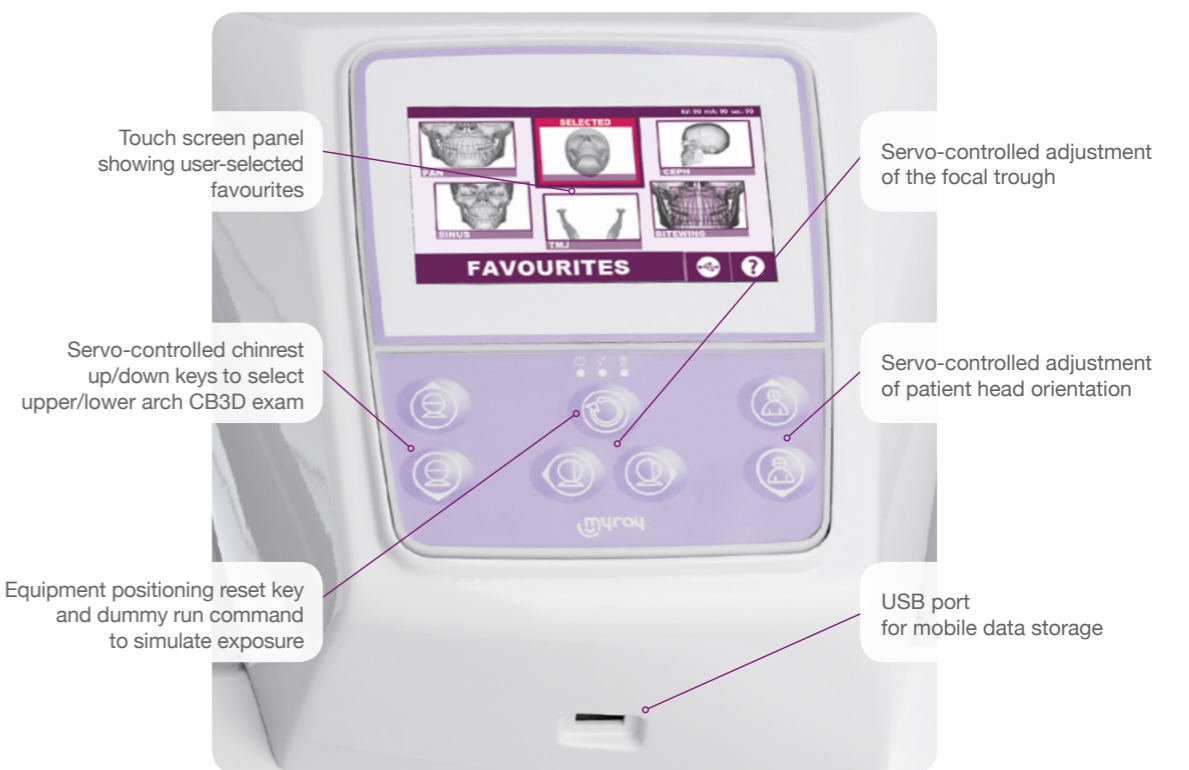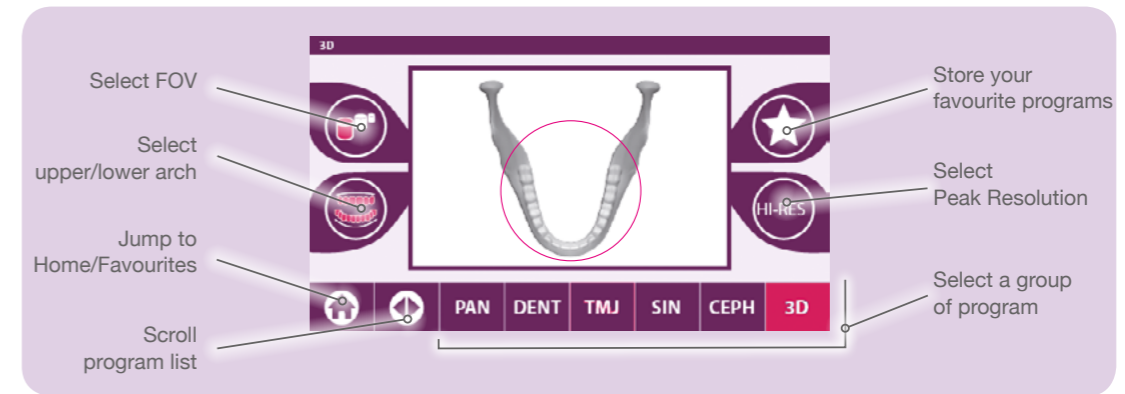
Scout Method

Prior to 3D scans, a two dimensional preview image is obtained to identify the exact region of interest. Thanks to its servo-controlled kinematics, HYPERION will automatically reposition the FOV according to any adjustments made by the operator with a simple mouse click.
These scout images are acquired at extremely low dosage and ensure that acquisition will not need to be repeated due to possible alignment errors.

Virtual control panel

By running the dedicated App on your iPad, you can also take control of the X9 at a distance and enjoy a larger interface with user-friendly graphics, icons and characteristically intuitive procedures.
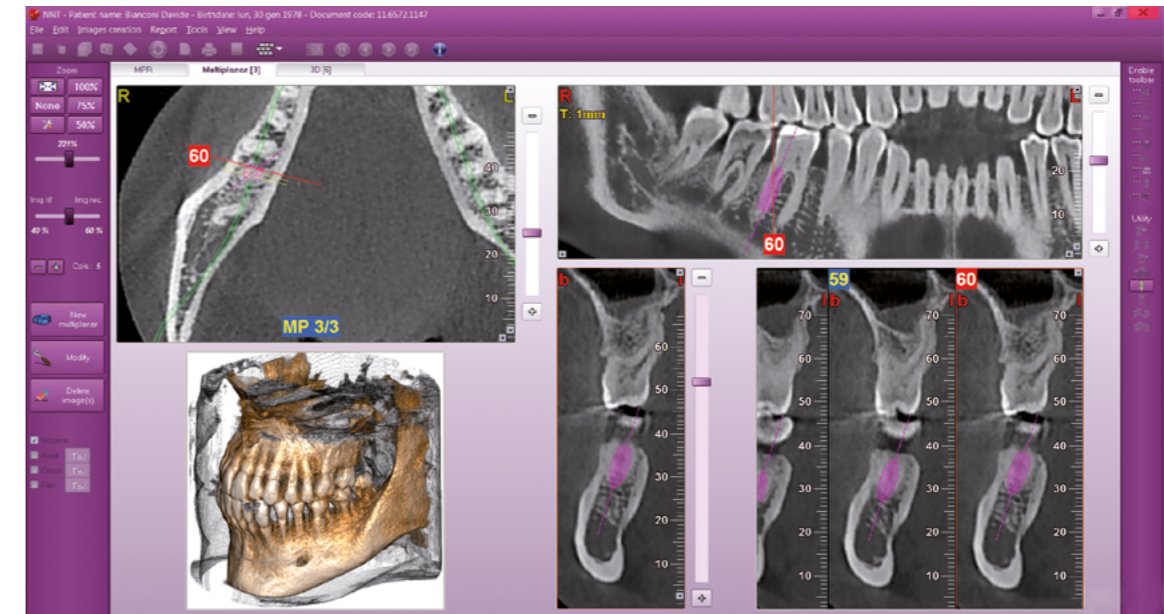
THE BEST CLINICAL SOFTWARE IN THE BUSINESS

High-speed processing, multilevel user interfaces, implant simulation with pre-loaded libraries, exportable data in DICOM® format, compatibility with third party software and, above all, a supportive software environment which makes your life much easier.

Real time data evaluation

iRYS processes all types of acquired data, including 3D data, in less than a minute, and what really counts is that you can navigate between all different views without requiring the software to re-process the previously generated data. Choose what to view and how to view it. Based on one set of acquired data, iRYS elaborates the selected data in real time. Panoramic images and dynamic cross sections can be generated as well as 3D bone models.
iRYS multiple desktop management system conserves all views on screen, so you can flip from one page to another without any delay. Both 2D and 3D images can be viewed together which facilitates your clinical evaluation of all data. Subsequent surgery is much safer and simpler thanks to the amount of data and precision of the information acquired.

Select your software interface

With iRYS software, users can select between different interfaces according to their professional needs. This ranges from oral and maxillofacial surgery for dental surgeons to the more specific needs of a radiologist. Whatever your requirement, the interface is adapted to your speciality.

Implant planning

Accurate data including bone density, position of the mandibular canal and virtual implant models will make implant surgery a faster process, a more effective way of ensuring patient loyalty and long-term satisfaction.
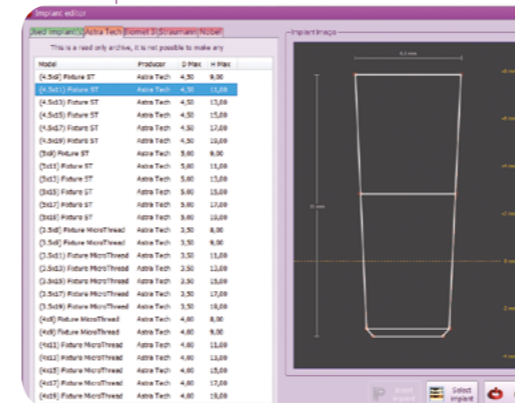
Pre-loaded libraries

A wide selection of implant models will aid in simulation in the implant planning phase. You can also generate your own made-to-measure models if it is not included in the libraries available.

Third party compatibility

All files are compatible with third party software, as data is exported in DICOM standard format. Data has been validated by all major and most widely-used third party implant systems.

Data sharing

Not only is a free viewer incorporated when you create a DVD containing specific examination data, but the entire redistributable iRYS licensed viewing software package and tools are included for use with the clinical case in question. Radiologists can thus analyse data and receiving parties can perform implant simulation, take measurements and process data in 3D with a fully-blown iRYS software licence as if they were still connected to the PC that originally generated the data.

DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

SHARING ENCOURAGES TRUST, TRUST FAVOURS TREATMENT

Versatile, upgradable and a sure way to consolidate your clinical excellence. HYPERION X9 is a consummate diagnostic tool which also brings you closer to what your patients really look for: understanding. By sharing each step of the treatment plan, from diagnosis through planning to post-operative evaluation, you will be able to accompany your patients and experience less potential opposition due to lack of clarity with regard to the clinical situation or doubts about treatment outcome.

At ease with the data

Feeling at ease when you are manipulating complex 3D data is reassuring.
The quantity and quality of the information X9 provides and the simple way you can manage that data makes for a clearer diagnosis and helps effective planning, ready for efficient treatment.

At ease with you

Nothing is more satisfying than collaborative patients. When they fully understand the reasons behind treatment and can envisage the outcome, this will ultimately encourage a sense of trust in your professionalism.
The perfect ingredient for your surgery today and tomorrow.

Involve your patients

Allow them to appreciate the clinical images on a high-tech support such as the iPad where 2D radiographic images can be viewed in diagnostic quality.

Available on the
App Store

Meeting each of your requirements

There are more aspects than meet the eye. Requirements is a term which goes beyond the sole need to obtain 2D or 3D diagnostic images. We understand your need to feel at ease with your equipment, your desire to be as efficient as possible and convey a sense of professional confidence. Encouraging your patients to accept treatment is an objective we share. Your business depends on numerous factors; we are aware of every dimension. Investing in X9 today will help your business grow tomorrow.

2D Clinical Cases
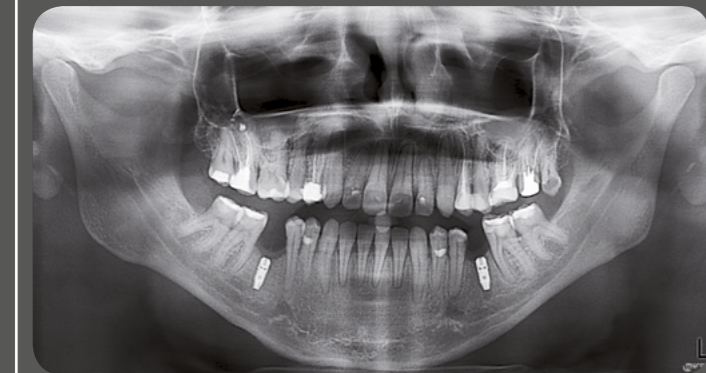
Consistently good results

❶ a sampler of three very different morphologies: a child, an adult and an elderly patient benefiting from Hyperion's Wide Focus panoramic projection.

❷ a hemi-dentition projection achieved with a very low X-ray dose, showing a wealth of clinical detail.

Bitewing projections

❸ Bitewing exposures limited to crowns, to detect interproximal caries, can be a comfortable alternative to intraoral imaging, appreciated by patients with a strong gag reflex.
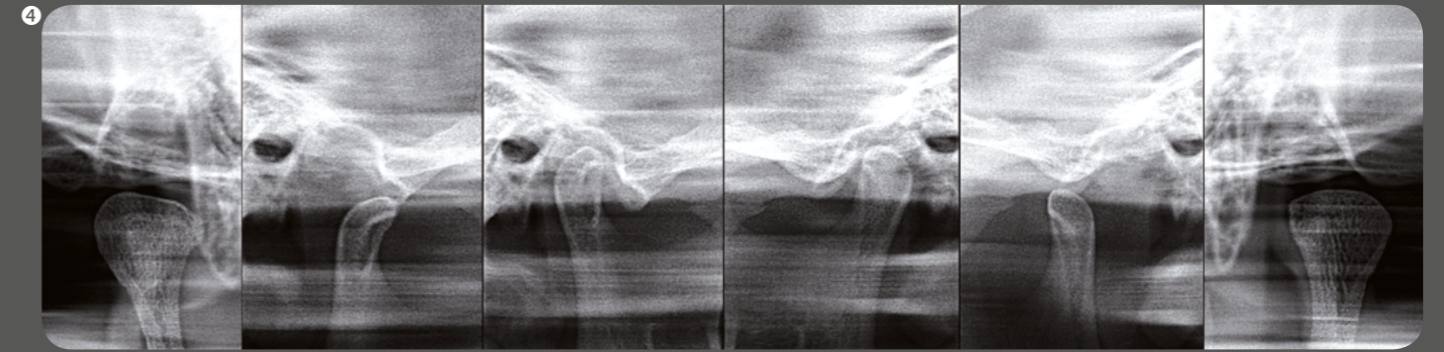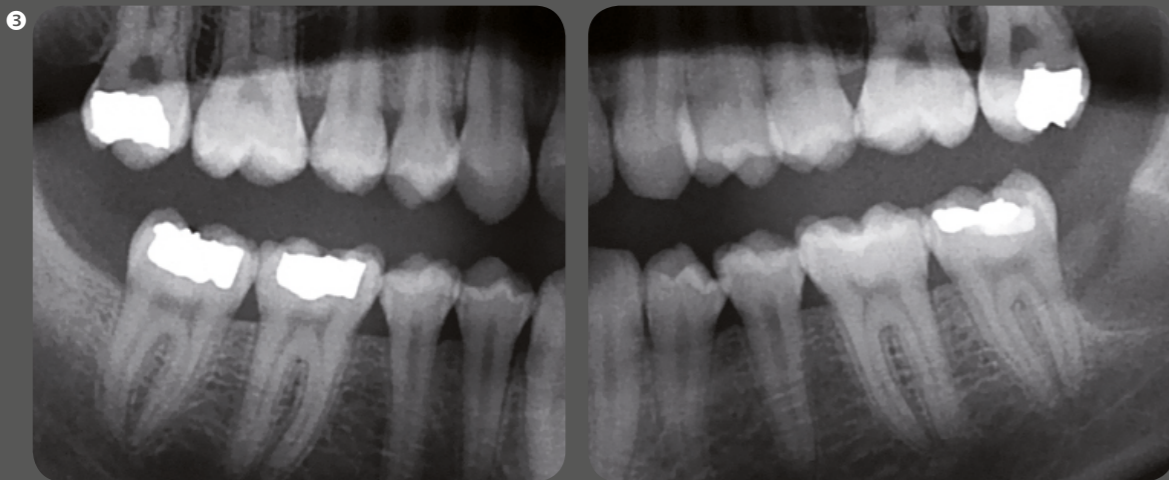
Specialty radiographs

❹ a thorough investigation of left and right TMJs, combining Lateral projections of TMJ in open and closed mouth positions and Postero-Anterior projections. Such an outcome is achieved thanks to a precise identification of the position of condyles, using Hyperion's laser guides.

❺ frontal view of maxillary sinuses.

❻ carpal teleradiography

❼ Latero-Lateral teleradiography, highlighting both bony structures and soft tissue profile, suitable for Cephalometry.
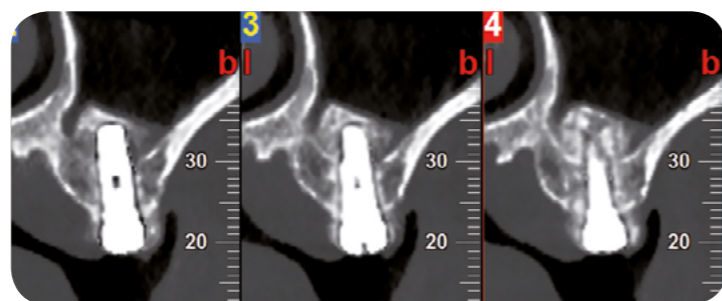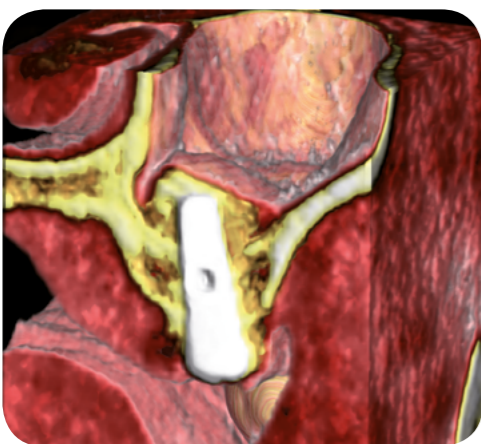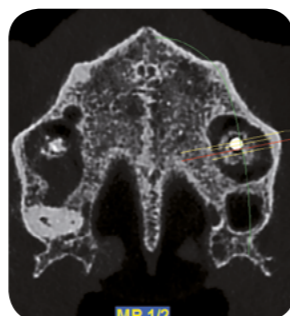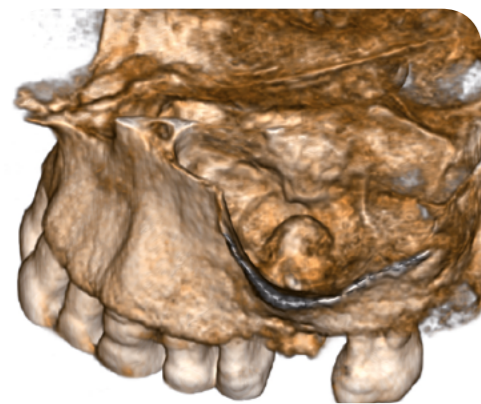
Implant case with sinus lift

sampler of views, extracted from the same CB3D dataset acquired right after surgery, showing the correct relationship between implant, bone, augmented sinus membrane and mucosa.
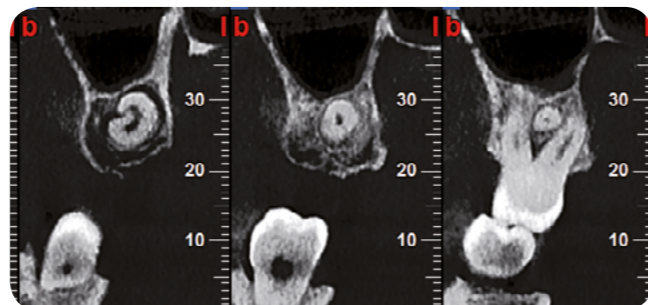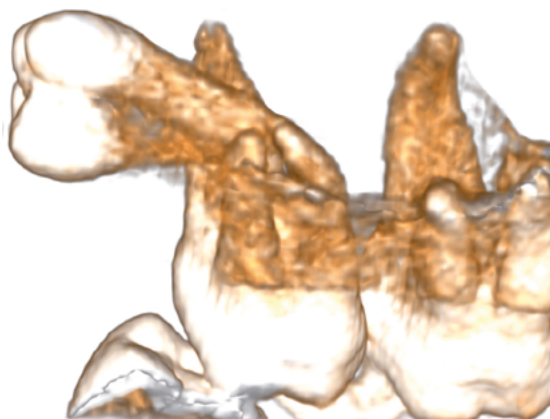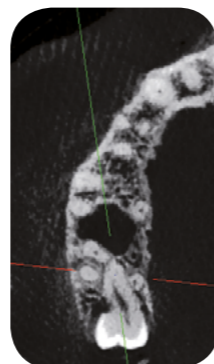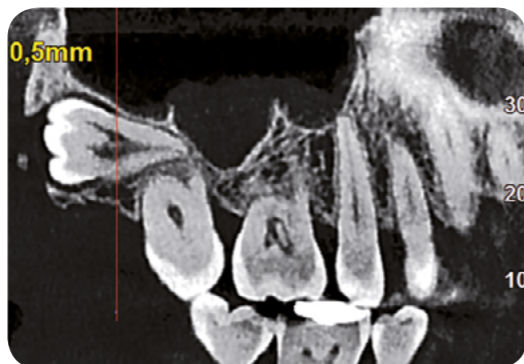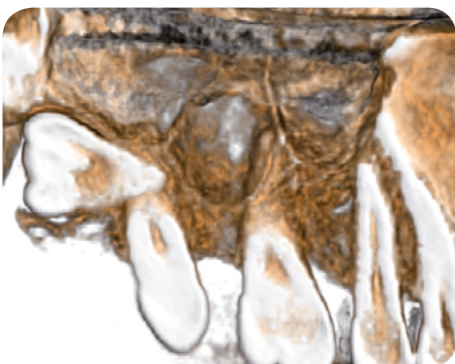
Unerupted maxillary third molar

thorough radiographic assessment, showing the intricate roots in sharp detail; this level of diagnosis is achieved without multiple radiographic projections; one exam does it all.

Technical specifications

3D detector specs
- Detector technology: Amorphous Silicon (a-Si)
- X-ray conversion method: CsI (Cesium Iodide) Scintillator
- Image voxel size: 75µm
- Dynamic range: 16bit
- Gray shades: 65535
- Minimum slice thickness: 0.075mm
- Dataset format: iRYS proprietary and DICOM 3.0
- 11x8 FOV version
  - Field of view, Diameter x Height: 108x80mm
  - Available FOV sizes (DxH):
  - 11x13 - 11x8 - 8x8 - 11x5 - 8x5 - 5x5cm
  - Image dataset, largest size: 720MB
- 11x5 FOV version
  - Field of view, Diameter x Height: 108x50mm
  - Available FOV sizes (DxH):
  - 11x8 - 11x5 - 8x5 - 5x5cm
  - Image dataset, largest size: 450MB

2D detector specs
- Detector technology: CCD (Charge Coupled Device)
- X-ray conversion method: CsI (Cesium Iodide) Scintillator
- Protection from direct X-ray exposure: FOP (Fibre Optics Plate)
- Pixel size: 48µm
- Dynamic range: 14bit
- Gray shades: 16383
- Detector resolution: 10.4lp/mm
- Signal To Noise Ratio: minimum 74dB - typical 86dB
- Original file format: TIFF, 16bit
- Image resolution: more than 5lp/mm
- Pan
  - Detector height: 146mm
  - Image pixel matrix, max.: 1528x2797
  - Image file, largest size: 8MB
- Ceph
  - Detector height: 220mm
  - Image pixel matrix, max.: 2291x3125
  - Image file, largest size: 14MB

X-ray generator specs
- Generator type: Constant potential (DC)
- X-ray emission type: Pulsed, square shaped pulses
- Anode Voltage: 60 - 90kV
- Anode Current: 1 - 10mA
- Exposure time range: 160ms – 14s (R10 scale)
- Focal spot dimension, IEC 60336-1993: 0.5mm
- Exposure Control: Automatic
- Exposure Control Method: Morphology Recognition Technology

- Compensation of Spine absorption: Automatic
- mA and kV pattern modulated in real time during X-ray exposure
- Anode Current and Voltage are automatic or manually selectable in steps of 1, in the whole kV range
- Duty cycle at full power operation (85kV, 10mA): 1:20
- Inherent filtration at 85kV (mm eq. Al.): 3.2

X-ray exposure
- Embedded X-ray shielding behind receptor, conforming to IEC60601-1-3
- X-ray exposure time
  - CB3D, High Resolution: 3.6s
  - CB3D, Peak Resolution: 9.0s
  - Panoramic, Adult: 9.3s
  - Child Dentition: 7.3s
  - Child Ceph Lateral: 3.4s
- Minimum scan time for CB3D: 18s
- Minimum render time for CB3D dataset: 15s
- Typical effective dose (ICRP 103)
  - CB3D 11X8, High Resolution: 33.5µSv
  - CB3D 11X8, Peak Resolution: 78.6µSv
  - Panoramic: 6.7µSv
  - Dentition only: 4.3µSv
  - Ceph Lateral, Reduced: 1.0µSv

Equipment dimensions
- Minimum required operation dimensions,
  - Width x Depth: 1310x1520mm
  - Including ceph (W x D): 1830x1520mm
- Motorised column, adjustable height: 1610-2400mm
- Packed dimensions,
  - Crate, no Ceph (H x W x D): 1515x1750x670mm
  - Ceph option, cardboard: 822x1430x580mm
- Weight, no Ceph: 170Kg - 375lbs
- Weight with teleradiographic arm: 190Kg - 419lbs
- Wall or floor support, free standing base available
- Accessible for patients on wheelchair

Power supply specification
- Automatic adaptation for voltage and frequency
- Voltage: 115 - 240 Vac, ± 10%
- Frequency: 50 / 60 Hz ± 2 Hz
- Current, nominal temporary peak absorption: 7A at 240V, 15A at 115V
- Maximum current absorption in standby mode: 1A

dimensions in millimetres (dimensions in inches)