



3D Cone beam CT  
& Digital Radiography  
Dedicated to Otorhinolaryngology



RAYSCAN



# Multi-functional imaging solution

RAYSCAN m+ is an unique 2-in-1 imaging solution, combining Cone Beam CT and Digital Radiography, designed for ENT specialists.

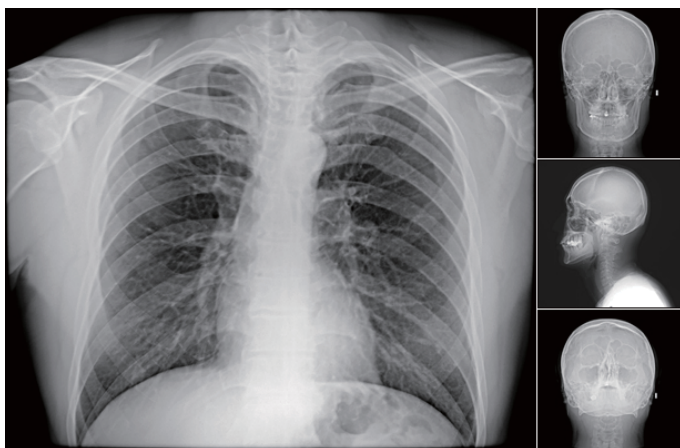






### 3D CBCT applications

- Otology and cochlear Implant
- Neurotology and temporal bone
- Rhinology and sinus surgery
- Pediatric otorhinolaryngology



### 2D Digital radiography

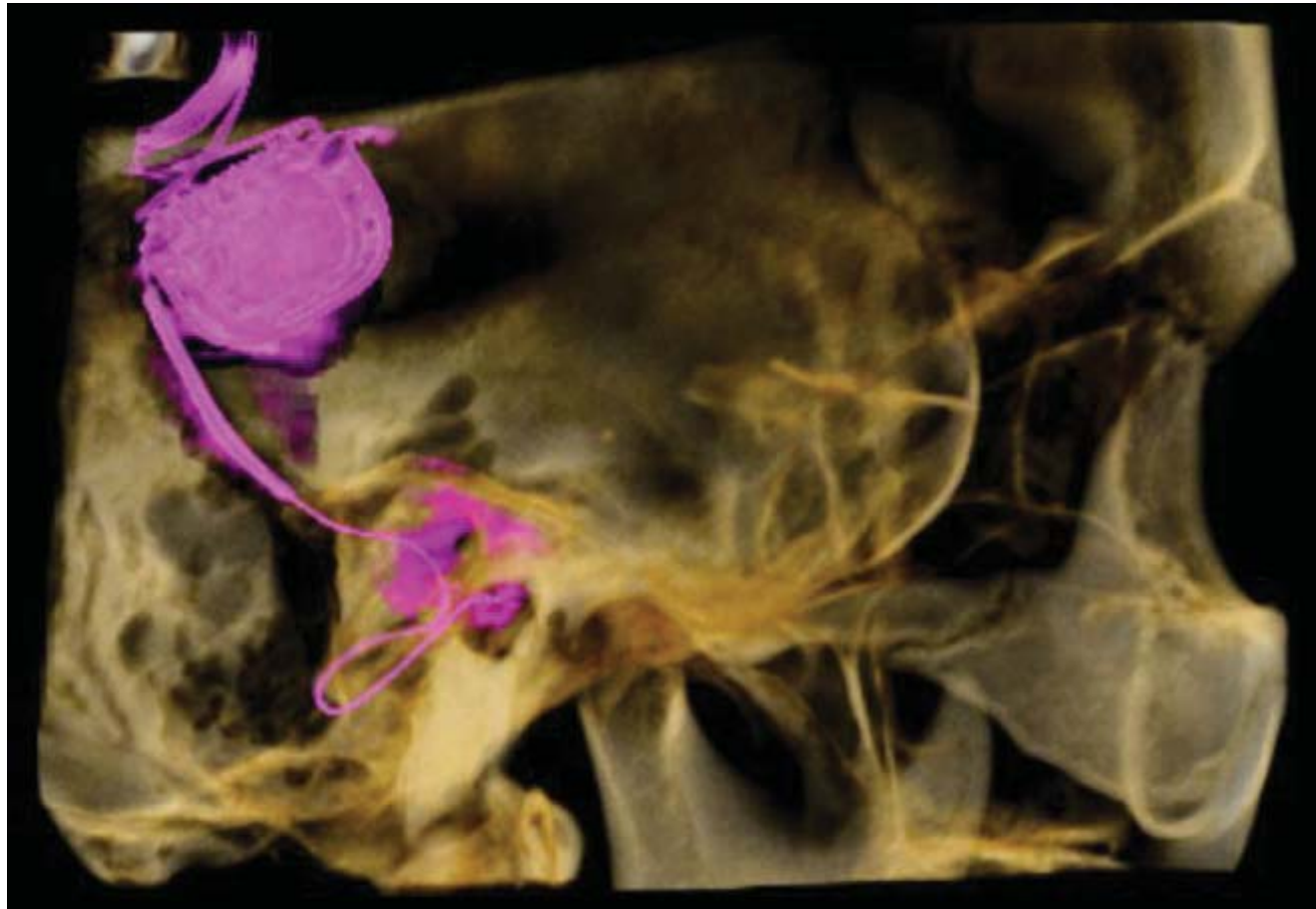
- Chest exam : PA / AP / Lateral
- Laryngology
- Skull : PA / AP / Lateral / Waters
- Neck



# RAYSCAN m+

The state-of-the-art CBCT technology provides more accurate 3D images and 2D digital radiography options lead you to the best possible outcomes

# Otology & Neurotology



## Diagnosis › Planning › Treatment

High definition CT quality enables to make precise diagnosis even on small anatomic structures of cochlea and auditory ossicles.

\* Images are courtesy of SOREE Ear Clinic





Diagnosis > **Planning** > Treatment

Case study of cochlear implant planning

The application of CBCT to cochlear implant surgery

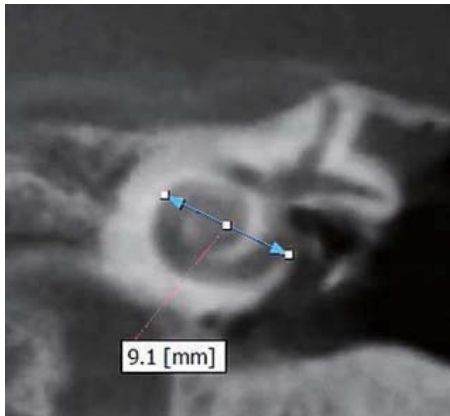
“An accurate measurement of the length of the cochlea is a selection of the optimal type of implant, which is essential for preserving residual hearing as maximally as possible.”

“Using a high resolution cone beam CT, a line passing from the round window and the spiral center of the cochlea to its lateral wall can be correctly drawn. Thus, the length of the cochlea is measured.”



Dr. Bae, SC  
the principal doctor of  
the Soree Ear Clinic

SOREE  EAR CLINIC



**Cochlea length**  
= 2.62A x ln (1.0+θ/235)  
= 2.62A x  
ln (1.0+990/235)  
(θ=2+3/4turn=990°)

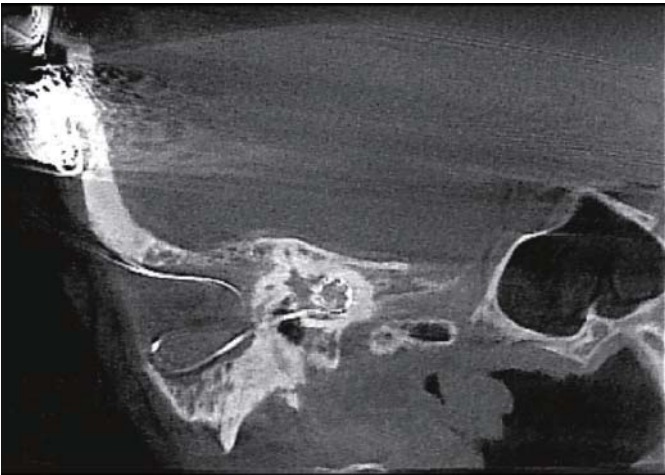
by Escude et al. 2006

Diagnosis > Planning > **Treatment**

Diagnosis before implant surgery



Follow-up after implant surgery



*Ray Digital solution I : Hearing Aid* CT to shell printing \*



CT scan



Direct STL



Digital Design



RAYDENT (3D printing)

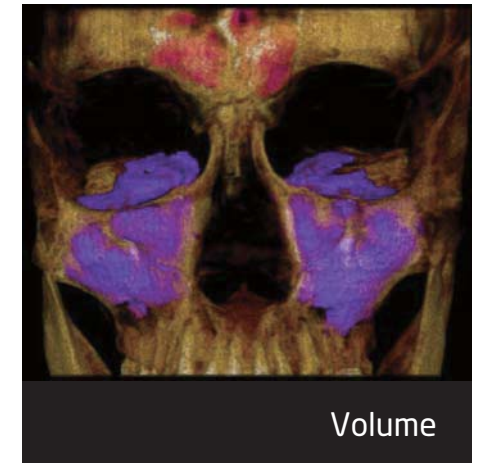
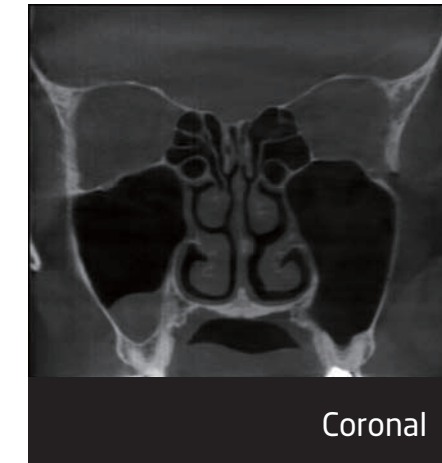
\* In progress of regulatory approval. Will be available in market soon. **Opened to discuss business partnership**

# Rhinology & Sinus

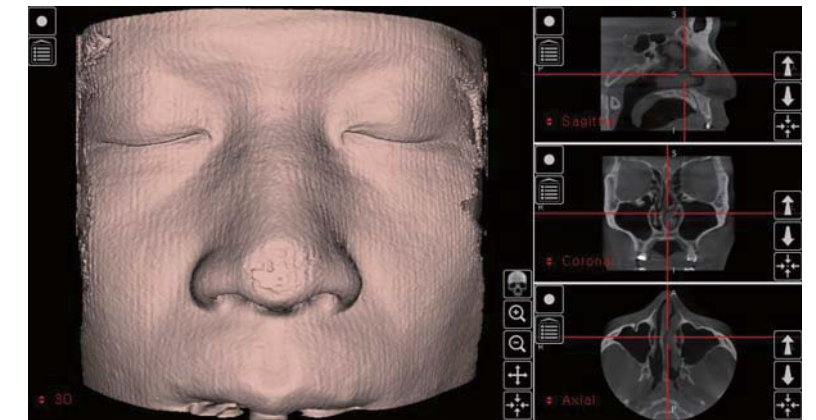


## Diagnosis > Planning > Treatment

Clear 3D images of sinus visualize detailed morphological information among air, bones and soft tissues.  
You can see more complete view of the anatomy which is not seen on 2D.

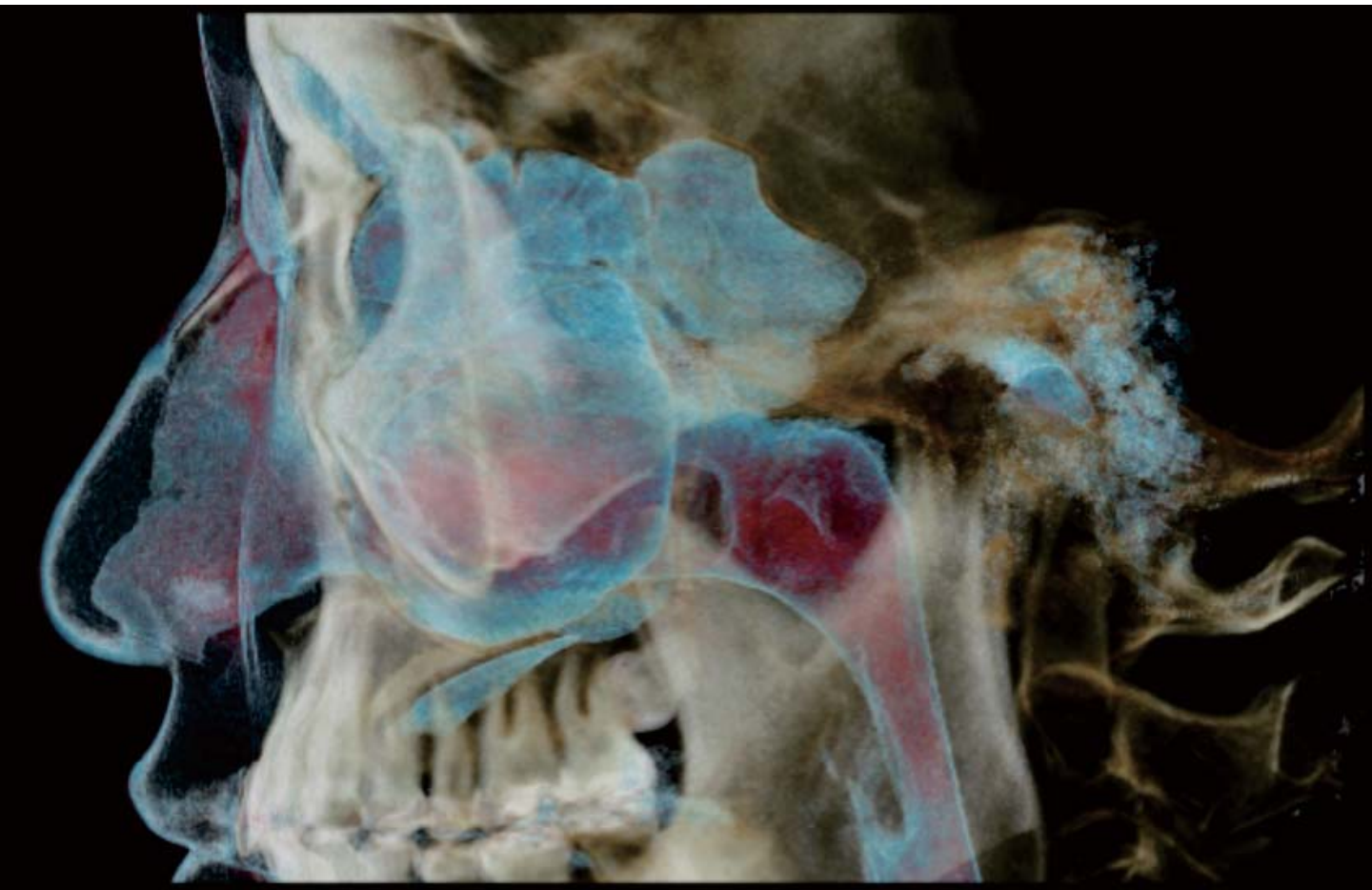


Integration with ENT navigation





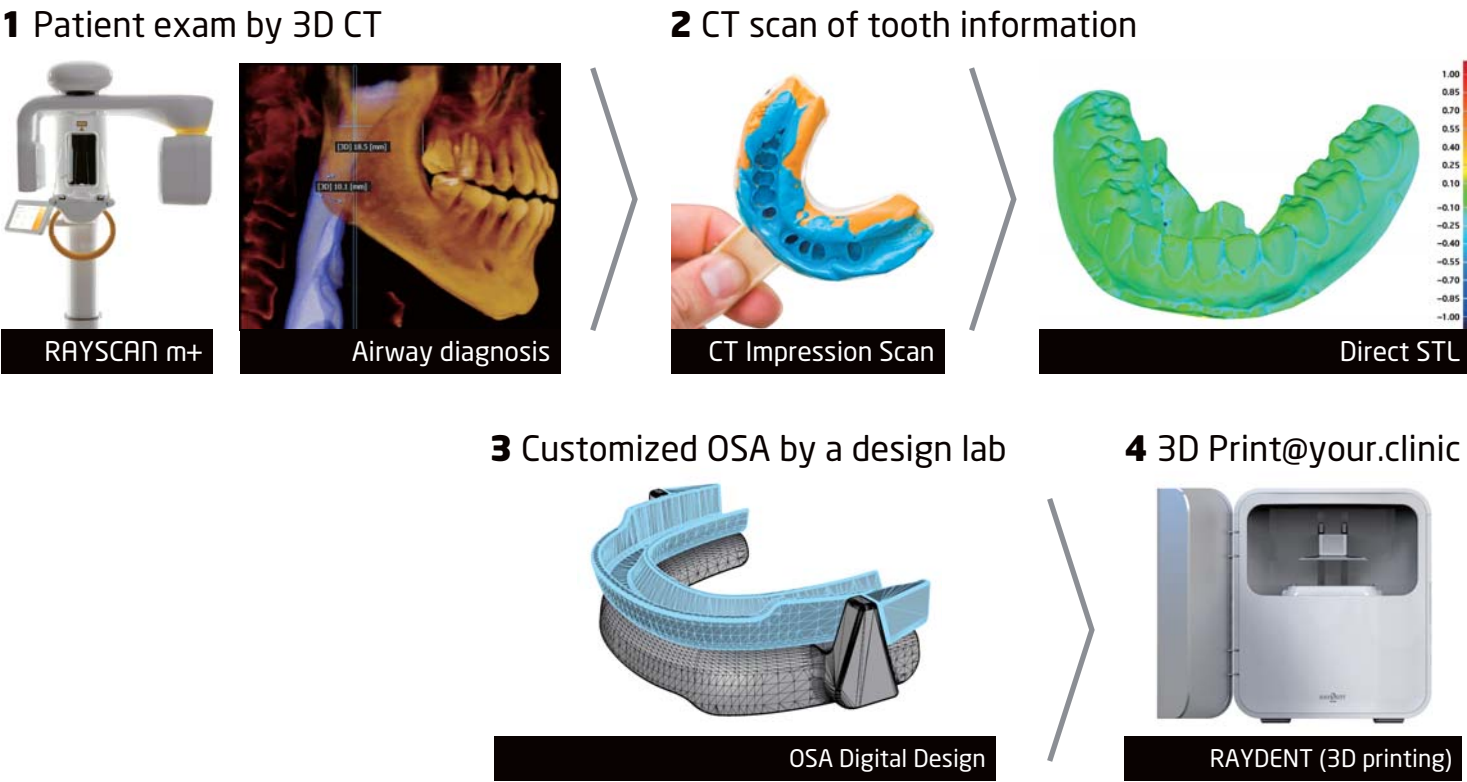
# Sleep Disorder



## Diagnosis > Planning > Treatment

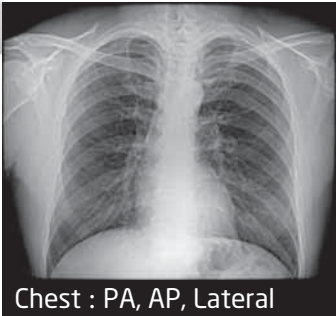
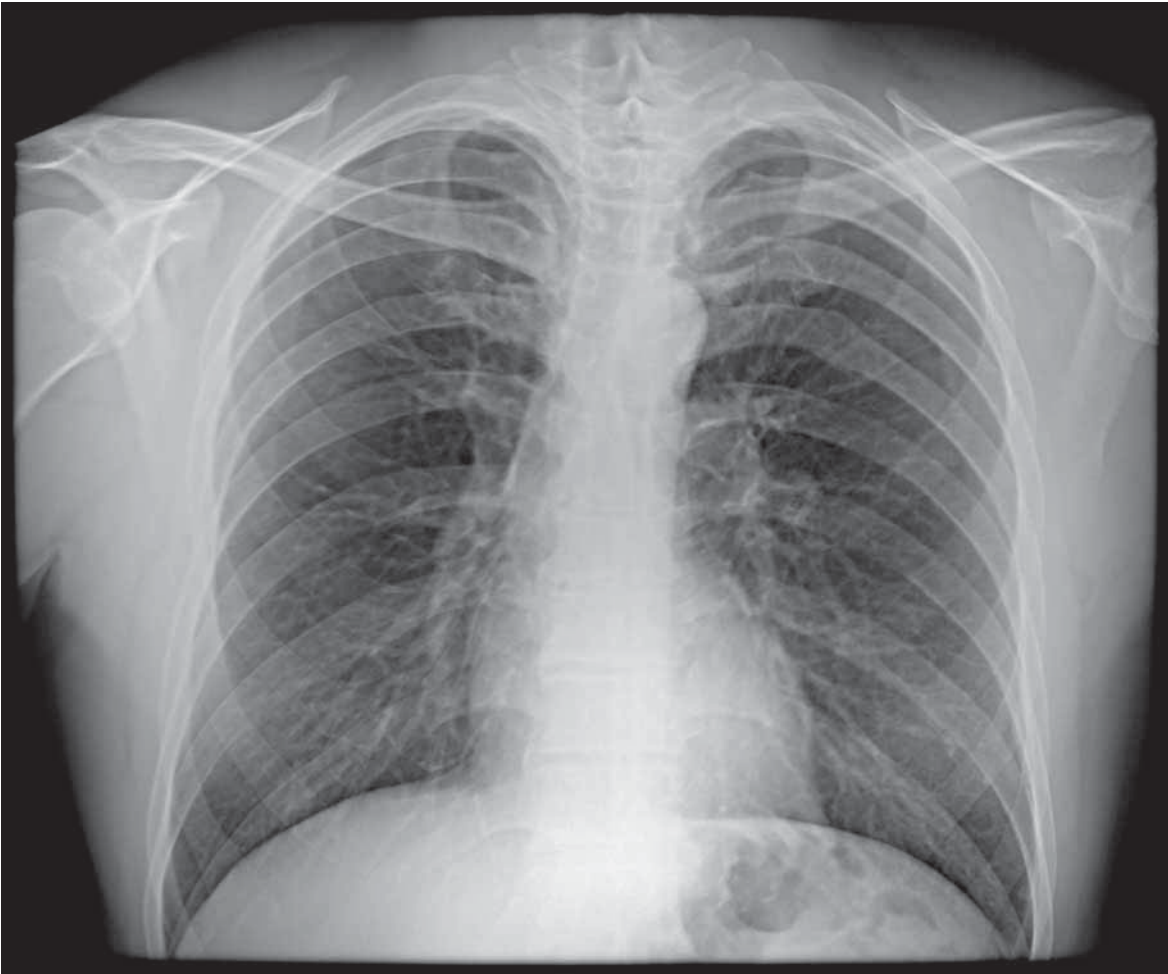
RAYSCAN m+ provides 3D CT diagnosis for patient airway related to obstructive sleep apnea(OSA) which can be directly printed for OSA treatment.

*Ray Digital solution II: Sleep apnea* CT to sleep appliance printing \*

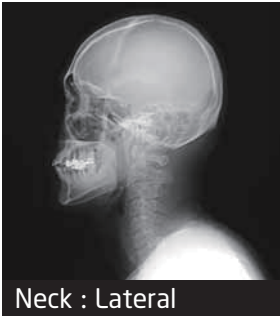


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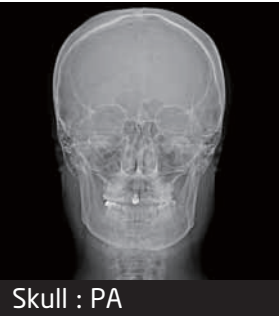
# 2D Radiographic Diagnosis



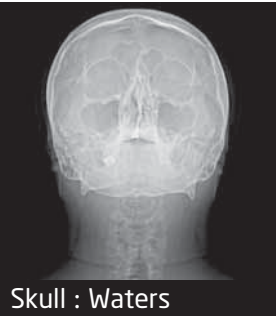
Chest : PA, AP, Lateral  
- Foreign body aspiration  
- Lung condition



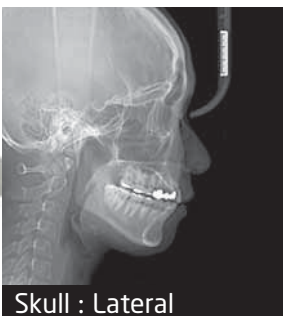
Neck : Lateral  
- Epiglottitis, esophagus, trachea  
- Sphenoid, frontal, ethmoid adenoids, tonsils, cervical vertebrae



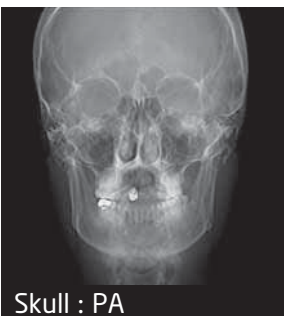
Skull : PA  
- Maxillary sinus



Skull : Waters  
- Maxillary sinus



Skull : Lateral  
- Epiglottitis, esophagus, trachea  
- Sphenoid, frontal, ethmoid adenoids, tonsils



Skull : PA  
- Maxillary sinus



Skull : Waters  
- Maxillary sinus

Medical grade 2D diagnosis  
Medical grade detectors provide high resolution images for each clinical practice.

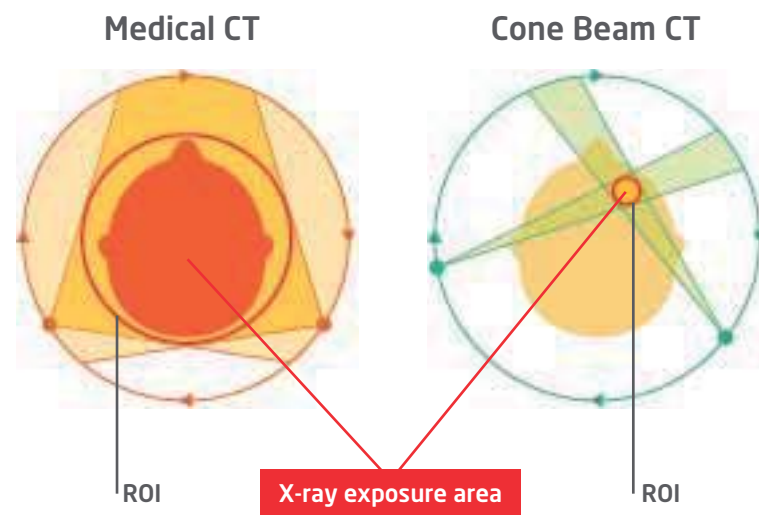


# Our ways toward patient safety

High ← Dose Level → Low

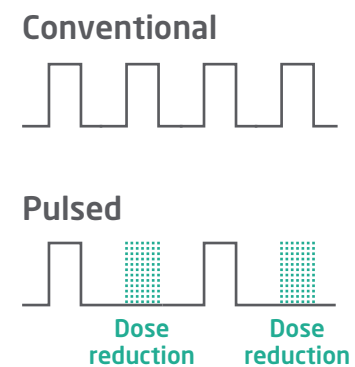
## 1 Less radiation dose with Cone Beam CT

Cone Beam CT has lower radiation dose than conventional medical CT exam, according to many known scientific papers. A key ability of cone beam CT is to change the field-of-view by modulating the cone beam width. Tight beam-width and shorter scans also contribute to reducing radiation doses.



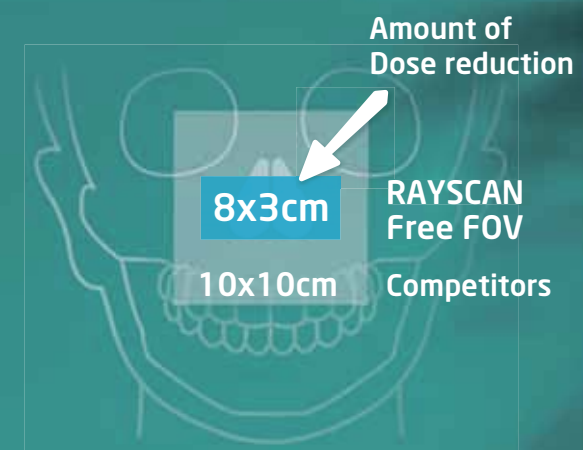
## 2 Short Pulsed X-ray

Pulsed X-ray operates to admit short pulse of X-ray into patient that relatively reduce radiation dose than continuous one.



## 3 Visible Light Guide

Simply move the visible guiding light to select the area of interest for diagnosis.



# Single touch of practice operations



## Wide touch screen

- 10" wide monitor and intuitive user interface
- Image preview to verify your exam

## Wireless remote control

High sensitivity and non-directional make easy operation

## Protocol selection

## Motorized positioning











Motorized height adjustment to set correct patient position

## Free FOV / Light Guide

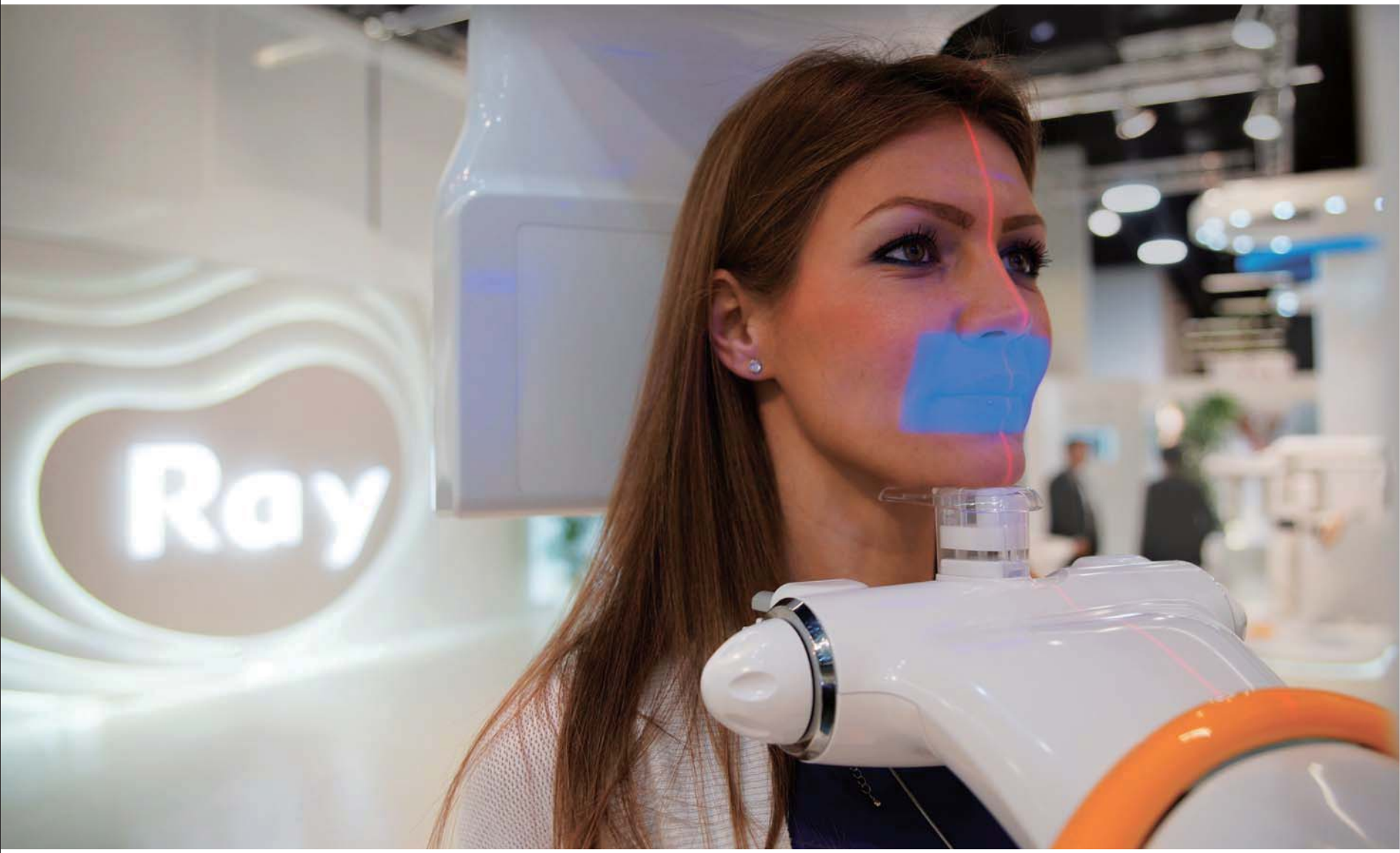




Clinical field-of-views

| 3D Applications |  | Free FOV<br>(Light Guide Range) |                | 2D Applications         |  | Free FOV<br>(Light Guide Range) |                     |
|-----------------|--|---------------------------------|----------------|-------------------------|--|---------------------------------|---------------------|
|                 |  | Min.(cm)                        | Max.(cm)       |                         |  | Min.(cm)                        | Max.(cm)            |
| ENT             | Sinus     | 12x3                            | 15x10          | DR                      | Chest     | 8x8                             | 42x42               |
|                 | Ear       | L/R 12x6<br>Both 12x6           | 16x10          | DR<br>•<br>Scan<br>Ceph | LAT       | 8x8                             | 42x42<br>•<br>26x24 |
| OSA             | TMJ      | L/R 8x6<br>Both 12x6            | 12x10<br>16x10 |                         | PA/AP    | 8x8                             | 42x42<br>•<br>26x24 |
|                 | Airway  | 12x3                            | 16x10          |                         | Waters  | 8x8                             | 42x42<br>•<br>26x24 |
|                 | Jaw     | 8x3                             | 12x10          |                         | Carpus  | 8x8                             | 42x42<br>•<br>26x24 |

Light Guide Free FOV



# Technical specifications

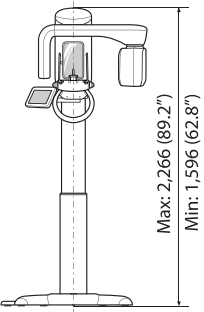
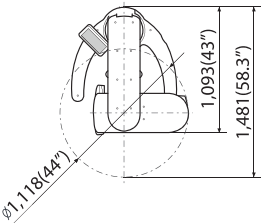
## RAYSCAN m+ (Model: RCT710)

Specifications are subject to change without prior notice.

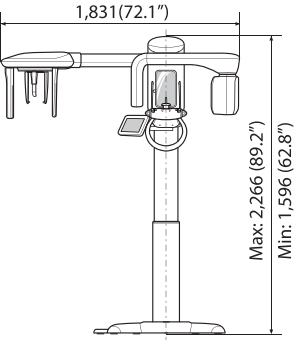
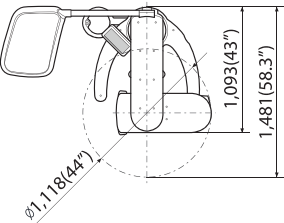
|                     |                                  |                               |                          |
|---------------------|----------------------------------|-------------------------------|--------------------------|
| Patient positioning | Standing (wheelchair accessible) |                               |                          |
| Focal spot          | 0.5mm                            |                               |                          |
| Tube current        | 4~17mA                           |                               |                          |
| Tube voltage        | 60~90kVp                         |                               |                          |
| Detector type       | CT (Default)                     | Scan Ceph (Option)            | DR (Option)              |
| FOV / Image size    | CMOS<br>Max. 16x10cm             | CdTe detector<br>Max. 26x24cm | a-Si TFT<br>Max. 42x42cm |
| Free FOV support    | Yes                              | Yes                           | Yes                      |
| Voxel / Pixel size  | 180~400μm                        | 100μm                         | 127μm                    |
| Exposure time       | 14sec                            | 4.9~9.9sec                    | Max. 3sec (0.2~0.8)      |

(Unit : mm / inch)

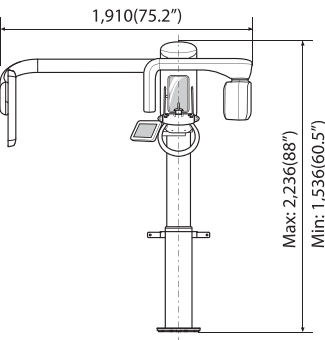
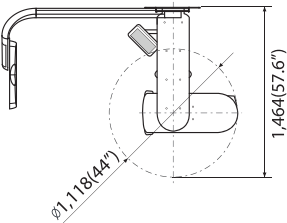
CT



Scan Ceph



DR







Ray Digital solution

**Opened to discuss strategic partnership.**

For more information or inquiries,  
please visit **[www.raymedical.com](http://www.raymedical.com)**  
or contact your local representative.



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