PANTHERA
IMPLANT

CBCT SCANNING PROTOCOL

CAD-CAM
sub™
subperiosteal
IMPLANT

CBCT Scanning Protocol

Preamble

This procedure aims to provide guidelines for imaging with a computed tomography scanner (CT scanner) for the design and fabrication of CAD/CAM Subperiosteal Implants.

Patient Preparation

The Subperiosteal Implant sits directly on the patient's bone. This part of the scan is thus the most important. It is recommended to remove all removable prostheses from the patient's mouth for the scan. Moreover, metallic parts cause image artefacts. It is strongly recommended to remove all removable parts that contain metal.

Patient Position

The mouth of the patient must be kept slightly open in order to avoid occlusion of the teeth. Non radiopaque objects such as cotton rolls can be used to maintain the position stable during the scan. Position the head of the patient so that the occlusal plane of the mandible is parallel to the floor.

Visual Range

The visual range of the computed tomography scanner must allow complete coverage of the area that will be used to position the implant. The Subperiosteal Implant will be implanted in the posterior part of the mandible and up to the ramus. It is important to make sure that this area is covered by the scan.

OPTION 1

Option 1 represents the ideal situation where the computed tomography scanner allows for a visual range that covers the entire mandible.

OPTION 2

Option 2 must be used if the computed tomography scanner does not allow for a full visual range of the complete mandible. For a unilateral implant, the visual range must cover only the side where the implant will be placed. For a bilateral implant, it will be necessary to run two scans, one covering the right side, and the other one covering the left side.
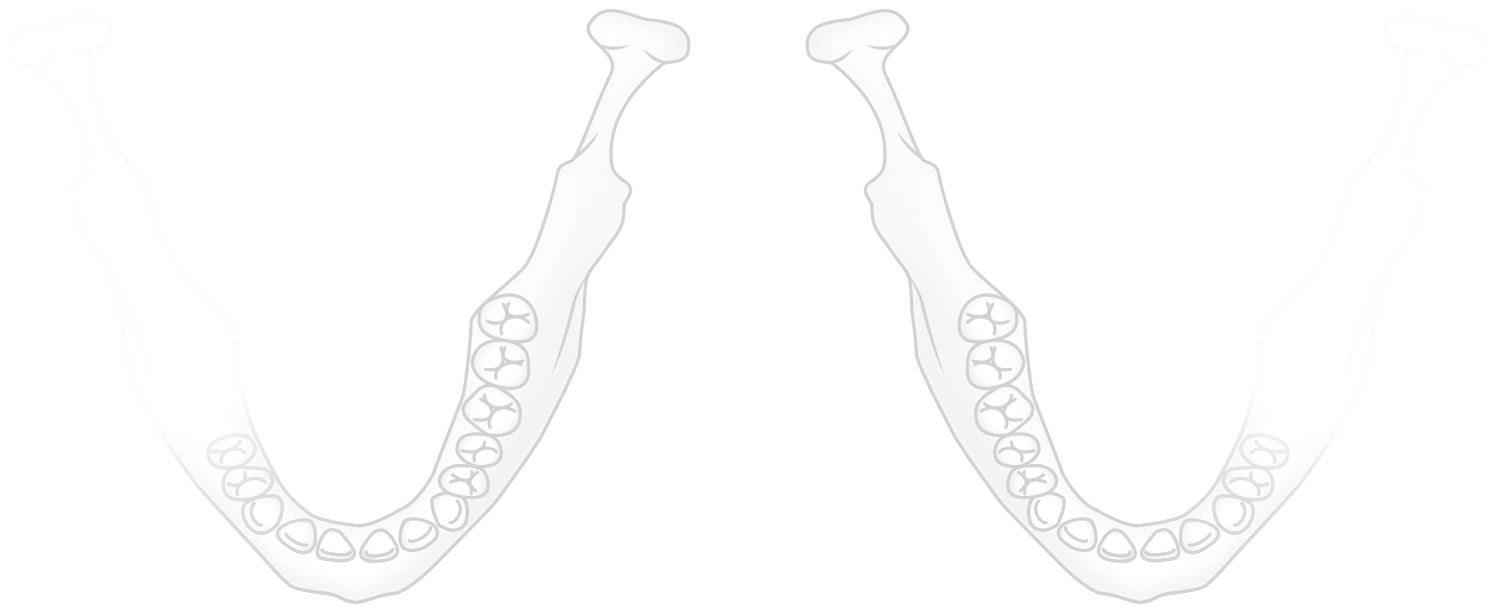
Image Resolution

The Subperiosteal Implant manufacturing technology makes it possible to produce highly accurate implants. To begin the work, it is therefore necessary to have high resolution images. It is a crucial element to produce an implant that will fit the bone well. The highest possible resolution will allow greater accuracy of the implant.

Axis	Résolution
x	≤ 0.3 mm
y	≤ 0.3 mm
z	≤ 0.6 mm

Minimum acceptable threshold.

IMPORTANT:
The lower the number, the better.
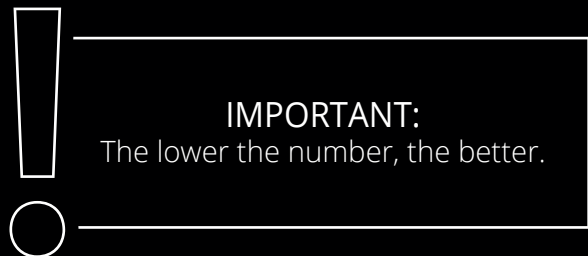
Image Contrast

The image contrast enables the easiest possible separation of bones from the rest of the image. It is another essential aspect to ensure implant accuracy. The image contrast is primarily obtained through the type of reconstruction filter used to create the images. The best results are obtained by using a filter that favors bones. This filter promotes sharp transitions between bones and soft tissues. The following image represents a good example of what should be obtained.
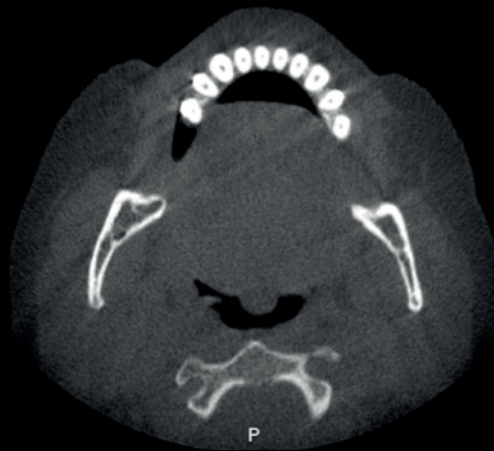
Image Exportation

Images from the computed tomography scanner (CT scanner) must be exported in DICOM (.dcm) format. Images must be saved in such a way that one file corresponds to a slice unit of the CT scan. If there are 400 slice units, there will be 400 files.