

CT Scanning Protocols for **ImplantMaster**

General

- **Patient Scan** - with the stent firmly fixed in the patient's mouth, as instructed by the dentist.
- **Dual Jaw Scans** (where necessary): Mandible and maxilla must be scanned separately.
- **Diagnostic Template Scan** - template alone in the Styrofoam holder provided by I-Dent. Template for mandible and maxilla to be scanned
- **Remove** metallic objects such as jewelry and metal prostheses

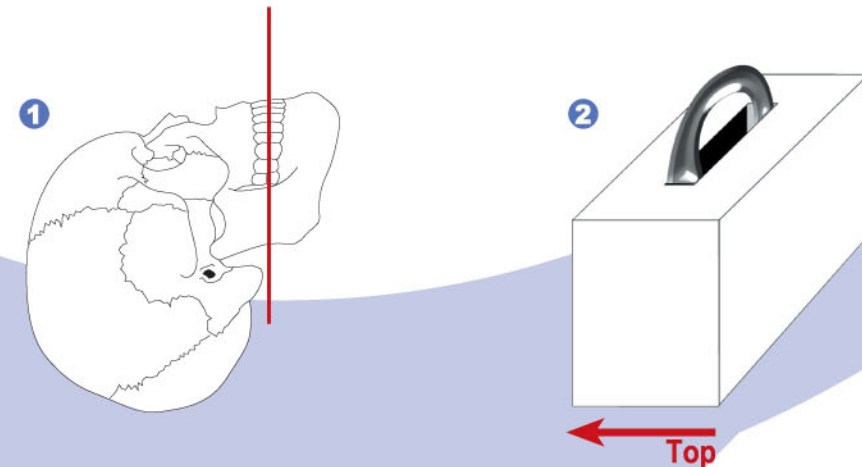
Scan Parameters

Use the manufacturers settings for Dental CT Scan with the following settings:

Slice Thickness	Lowest Available - Max 0.8 mm
Slice Increment	Half the Slice Thickness - Max 0.4 mm
Field of View	Less than 180 mm
Reconstruction Algorithm	Bone or High Resolution
Gantry Tilt	0°

Data Export

- Axial slices in native **DICOM format** (slices separately)
- Data for each jaw to be saved in **separate data sets** together with the data for each diagnostic template corresponding to that jaw (see reverse).
- Output medium: **CD ROM disk**



1. Scan Parameters

Use the manufacturer's settings for Dental CT Scan with the settings listed on the reverse side. In addition:

Pitch: according to the CT manufacturer's instructions for High Image Quality setting.
kVp and mAs: according to the CT manufacturer's settings for a Dental protocol.

2. Scanner

Multi-slice scanners with sub-millimeter slice thickness capabilities must be used. DICOM output required.

3. Reconstruction Algorithm

Reconstruction Algorithm (or Kernel or Filter): according to the CT manufacturer's instructions for dental reconstruction. Examples of algorithms: GE - Bone, Sharp; Philips - High Res Filter D.

4. Patient Preparation, Positioning and Scanning

a) **Stent Positioning:** Insure that the stent is fixed and stable in the patient's mouth. The technologist should not perform the scan if the stent does not fit easily and soundly in the patient's jaw - contact the dentist.

b) **Patient Positioning:** The same as for a regular dental scan. The patient and the stent should be motionless during scanning the procedure. In order to assure this, the patient's head should be firmly attached to the Head Holder. If the lower jaw (mandible) is to be scanned, then the same procedure as for regular Dental CT scanning should be followed, including instructing the patient to bite an object such as a gauze pad.

The patient's head should be tilted so as to minimize the interference of the jaw and teeth images with artifacts stemming from metal fillings (**Pic-1**). A first positioning (before the Pilot or Surview scan) should be with the occlusion plane parallel to the scanner light marker. If the pilot scan reveals that the angulation is wrong, then further head tilting should be carried out. Each time that the patient's head is re-positioned, attachment to the head holder should be checked.

Any metal object like jewelry should be removed from the scanned region.

c) **Patient Scanning:** The region to be scanned should include all the relevant jaw volume, the diagnostic template and the teeth. A few millimeters should be added beyond the two extremities, in order not to miss relevant volume due to accidental patient motion. Everything should be scanned in one Spiral Scan, according to the above protocol.

Prior to the scan, the patient should be instructed not to swallow. If the scan lasts longer than ten seconds, the CT Technologist may wish to instruct the patient to swallow several times before starting the CT scan.

5. Template Positioning and Scanning

a) **Positioning:** The diagnostic template should be placed in a Styrofoam or poly-styrene holder (supplied by I-Dent), in the same orientation as scanned in the patient's mouth (**Pic-2**). The template holder support should be positioned on the scanner table similarly to the patient's head position during the patient scan, including the distance to the center of the FOV, the angle and the orientation.

b) **Scanning Reconstruction Protocol:** The same as for the patient scan.

6. Data Export

a) DICOM format using scanner export function or PACS system.

b) Two data sets (patient and template) per jaw **saved separately**

Mandible -



Maxilla (if relevant) -



c) Burned on **CD-ROM**.