

# SIG

## Scan Implant Guide

# Dual Cone Beam CT Scan with Radiographic Guide or Denture Protocol

### When Scanning with a Radiographic Guide is Required.

Dual scanning with a radiographic guide is required for fully-edentulous patients and those patients with metal fillings or crowns near the implant site. Dental fillings or crowns that include metal components can cause "scatter" in the CT scan that distorts the patient's CT image. By scanning with a properly fitted radiographic guide, the Scan Implant Guide Planning Software can correct for the "scatter."

### Preparation of the Radiographic Guide or Denture.

A successful case begins with the creation of a properly and carefully designed radiographic guide. The radiographic guide will communicate the desired restorative outcome to the entire treatment planning team before the surgery begins.

### Radiographic Guide.

Design the radiographic guide with prototype restorations. The following is a checklist of attributes:

- Teeth are properly chosen and placed.
- Contains no metal or any other radio-opaque component or material.
- 2.5-4mm Thickness.
- Buccal flanges are wide enough for radiographic markers and anchor pins.
- Properly fits on patient's anatomy.

Once a suitable radiographic guide has been produced, add radiographic gutta-percha markers. Radio-opaque glass beads or similar material can be used. 6-8 markers are recommended, 1.5-2.5mm in size, and spherical in shape -- not cylindrical, no special designs with special geometries.

Place half of markers on lingual side, half on buccal side. **Do not evenly distribute the markers.**

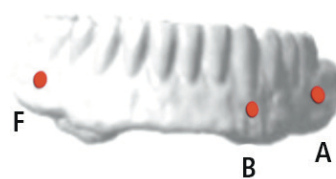
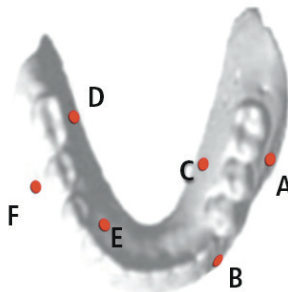
Make a bite registration using radio-translucent material.

### Denture as Radiographic Guide.

The patient's denture may also be used as a radiographic guide. Before getting started, inspect the denture for the following attributes:

- Teeth are the proper size, shape and length.
- Well-established occlusion.
- Buccal flanges are wide enough for gutta-percha markers and retentive pins.
- Includes hard reline only.
- Secure and close fit to soft tissue.
- Contains no radio-opaque or metal materials.

Once you determine that the denture is suitable, place 6-8 radiographic gutta-percha markers in the same manner as described for a radiographic guide.





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#### Patient Preparation.

- Patient must remove all metal prosthesis, as well as metal jewelry that might interfere with the region to be scanned.
- Patient's bite should be secure with cotton pads or other highly radio-translucent material (such as polyethylene).
- Avoid using any radio-opaque material that will prevent tooth surface from being segmented in CT data processing.
- Upper and lower teeth should not touch each other during the scan.
- Recommended space between the jaws is 5-8mm.
- Patient should be in a static position, and must not move or swallow during the scan acquisition.

#### Patient Scanning Instructions.

- The denture or radiographic guide should be firmly fixed and stable in the patient's mouth.
- The occlusal plane should be parallel to the plane of image slice generated, with no tilt.
- The height must be set in order to center the occlusal plane in the field of view (FOV). (See Figure 1, below.)
- If both arches require treatment, please provide a separate scan for each arch.



Figure .1

#### Guide Scanning Instructions.

- The radiographic guide or denture should be placed in a styrofoam or poly-styrene holder, in the same orientation as it was scanned in the patient's mouth.
- The guide holder should be positioned on the scanner platform in a position similar to the patient's head position during the patient scan – including the distance from the FOV, the angle and the orientation.

#### Scan Parameters.

Use the manufacturer's settings for Dental CT Scan, with the following settings:

Slice Thickness	0.2 – 0.5 mm
Slice Increment	0.2 – 0.5 mm
Reconstruction Algorithm	Bone or High Resolution
Tilt	0°

#### Data Export.

- Axial Slices in native **DICOM format** (format using scanner export function or PACS system).
- Data for each jaw to be saved in **SEPARATE DATA SETS**, together with the data for each radiographic guide (or denture used as a guide) corresponding to that jaw.
- Output medium – **CD ROM disk**.



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