CT SCAN PROTOCOL

The quality of the CT or CBCT is the most important aspect of creating patient specific devices, custom devices, or anatomical models. Your observation of the following protocol recommendations will have significant impact on the accuracy of the final device or model.

KEY POINTS TO KEEP IN MIND

- Use a 3D scanning routine that provides high-resolution images as would be suitable for image guided surgery, stereotactic planning or other 3D applications. *It may be useful to consult with your CT vendor's Application Specialist for advice on optimal parameters for your machine that provide the best scan with acceptable radiation dose levels.*
- Acquire scans at a high spatial resolution. Series should be acquired with thin, contiguous image slices (equivalent thickness and spacing of 1mm or less) and as small a field of view (FOV) as possible while still including the patient's anatomy of interest.
- Provide images in the original scanning plane. If the software post-processing is performed to reorient or reformat the scan volume, then a series of thin slice images in the original acquisition plane MUST be included.
- Do not use gantry tilt during image acquisition. Images acquired with gantry tilt then post-processed to reorient images (i.e. "take out" tilt) are NOT acceptable.
- Ensure that scans are free from motion artifact. Patient must remain completely still through the entire scan. If patient motion occurs, the scan must be restarted. Image distortion from patient motion can severely compromise the accuracy of a 3D model.
- Image artifact caused by metallic implants can obscure anatomy of interest. Please take steps to minimize artifact from the presence of metal.
- Archive the entire study in uncompressed DICOM format.
- Ensure the Data is anonymised .

- ## AREA OF FIELD
- Scan shall include 10cm above the ankle joint to the tips of toes
- If the Knee joint is being imaged to aid with leg alignment it shall be 5cm above and below the knee joint with a 1.25mm Slice Thickness/spacing

- ## CT SCANNER PROTOCOL
- Scan Spacing: Less than or equal to 1mm (equal to slice thickness)
- Slice Thickness: Less than or equal to 1mm (equal to scan spacing)
- Field of View (FOV): Set Field of View (FOV) to include entire area of interest
- Algorithm (Examples):   GE: Standard (not bone or detail)
  Siemens: H30s
  Toshiba: FC20
  Philips: B
- Gantry Tilt: 0 Degrees
- Pixel Resolution: Less than 0.75mm
- Aging Date: Less than 6 months
- Archive Media: CD, DVD, or Flash Drive
- File Type: DICOM (uncompressed)
- Series: Original / Primary / Axial (No reformatted data)