This protocol for use by the Imaging Center, will allow DePuy Synthes to accurately create a 3-D model of the patient’s bone and use it to design a patient specific knee instrument.

### Scanning Procedure Checklist

- [ ] 5mm thick spacing in hip and ankle (Figure 1)
- [ ] 0.5 to 0.8mm thin spacing in knee (Figure 1)
- [ ] Thick & thin slices can overlap, but cannot have gaps
- [ ] 25cm (or less) FOV is consistent throughout scan
- [ ] Soft tissue recon filter
- [ ] Femoral head and talus are included
- [ ] Axial images
- [ ] DICOM header contains the following:
  - Patient Name
  - Patient Date of Birth
  - Patient Gender
  - Ordering Physician
  - Institution Name (Name of CT Imaging Center)
  - Side Affected (Left or Right)
- [ ] No metal present within 8cm of joint (see Figure 2)
  *If metal is present in contralateral knee, it is flexed away from joint line (see Figure 3)"

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**Scan Parameters**

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Area</th>
<th>FOV</th>
<th>Centers</th>
<th>Spacing/ Thickness</th>
<th>Pitch</th>
<th>kV</th>
<th>Recon Filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Specified Leg</td>
<td>25 cm Max</td>
<td>Constant</td>
<td>Equal see values in Figure 1</td>
<td>1:01</td>
<td>120-140</td>
<td>Soft Tissue</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Figure 1</th>
</tr>
</thead>
</table>

**Figure 2**

**Figure 3**

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*Figure 1* illustrates the starting and ending positions for the knee scan with specified spacing and thickness.

*Figure 2* shows the correct (left) and incorrect (right) positioning of the knee relative to the 8 cm distance from the joint line.

*Figure 3* highlights the knee of interest with the existing TKA and slices affected by metal artifact.
Tips & Pearls

• Use different center points (X/Y position), making sure the FOV stays consistent
• Cropping soft tissue and patella is okay
• Prop up the patient’s leg with blankets, towels, etc.
• If your scanner will not support the whole leg in a single study, you may perform three separate studies (see Figure 1)
• No patient movement
• Eliminate gaps and reduce the overlap between thick and thin slices
• Avoid cropping joints

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Frequently Asked Questions

Can the patient be scanned in one single scan then go back in and reprocess the data to 0.5 mm thin slices for 150 mm in the knee joint line and 5 mm slices in the lower and upper leg?
Yes, a single scan can be done but it must be reprocessed into three separate spacings that we require in the protocol.

Can I delete the raw data after I scan the patient?
No. Keep the raw data until you receive confirmation from TruMatch that the scan has passed.

Is it acceptable to scan a bilateral case together in a 50cm FOV and reconstruct them separately into 25cm FOV?
Yes, you can reconstruct a bilateral. Make sure to maintain a FOV of 25cm or less and 512 x 512 resolution on the final images.