CT MAVEN Ankle

Updated 05/09/25
Reviewed 05/15/25

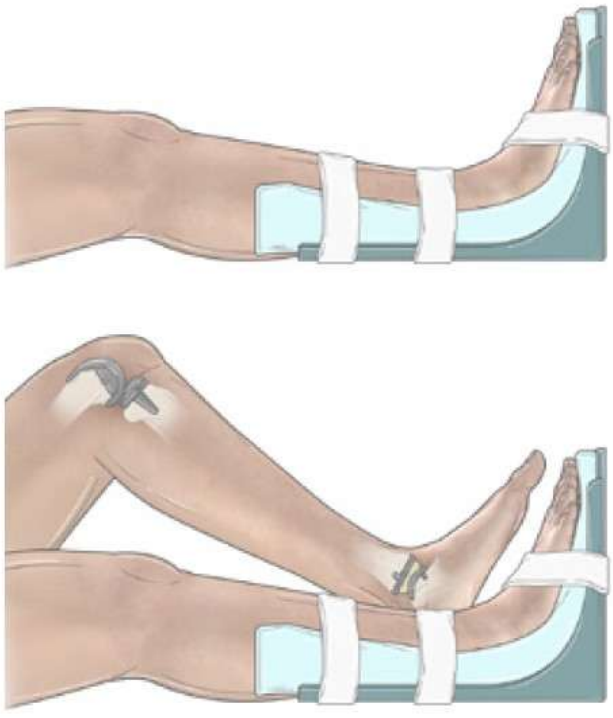
Indications - pre surgical evaluation prior to ankle joint replacement.
Bill under CT LE w/o Contrast charge. Do not include separate knee and ankle charges.

GENERAL SCAN NOTES

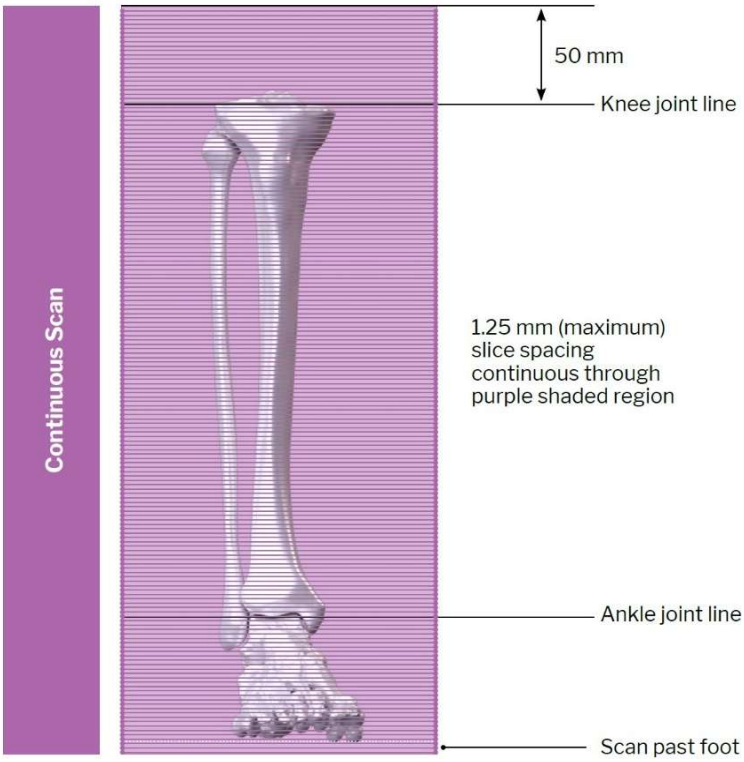
Remove any metal from the imaging field of view.
Patient positioning (see images at bottom of page):
- Foot of interest must be dorsiflexed with foot perpendicular to tibia (90 degrees).
- A foot holder/brace is not required. Do not place a cushion/pillow under the leg of interest.
- The opposite leg can be flat next to the leg of interest, unless there is knee and/or ankle hardware in the opposite leg, then have the opposite leg bent at knee with ankle/foot out of way of ankle of interest.

Topogram - from above knee through bottom of foot.
Craniocaudal scan coverage (see images at bottom of page):
- 5 cm superior to knee continuously through bottom of foot (metatarsals must be imaged entirely).

FOV: 25 cm (preferred) up to 40 cm acceptable.
IV Contrast: not given for this protocol.
For **GE scanners**, it is essential for the 1st recon thickness on the scanner to match the 1st recon thickness in this protocol book for the prescribed Noise Index to be valid. The 1st recon should generally be the thickest recon in the protocol.
Prepare an uncompressed DICOM disc and upload to www.apexankle.com.
Contact: Rick Agliata, RAgliata@paragon28.com, 904-562-9334.



Ankle Positioning



Craniocaudal Scan Coverage

CT MAVEN Ankle

SIEMENS PARAMETERS & RECONS

For **Knee** and **Ankle** scans:

	Scan Mode	kV	mAs	Care Dose	Care kV & Lvl	Pitch	Acq	Coll	Rot Time
Sensation 16	spiral	120	140	on	NA	0.55	16	0.75	1.0
Go Up 32	spiral	Sn 110	366	on	on 75	0.40	32	0.7	1.0
Sensation 64	spiral	120	140	on	NA	0.90	64	0.6	1.0
Definition 64	spiral	120	100	on	**off**	0.80	64	0.6	1.0
Go Top 64	spiral	Sn 110	898	on	on	0.40	64	0.6	1.0
Drive 128	spiral	120	70	on	**off**	0.80	128	0.6	1.0
Force 192	spiral	120	70	on	**off**	0.80	192	0.6	1.0

Name of Series	Thick	Interval	Kernel	Window	IR Lvl	Recon Direction	
AX BONE	3.0	3.0	Br59 / B60	bone/osteo	3	head/feet	
AX THINS BONE	**1.0**	**1.0**	**Br59 / B60**	**bone/osteo**	**3**	**head/feet**	**MAVEN specific recon.**
COR BONE	3.0	3.0	Br59 / B60	bone/osteo	3	front/back	
SAG BONE	3.0	3.0	Br59 / B60	bone/osteo	3	left/right	
AX SOFT	3.0	3.0	Br59 / B60	abdomen	3	head/feet	

GE PARAMETERS & RECONS

	Scan Type	SFOV	kV	mA Range	Noise Index	Smart mA	Slice Thick	Beam Coll	Pitch	Speed	Rot Time	Dose Red	ASIR
LS 16	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
Opt 540	helical	large	120	100-440	12.50	on	2.5	10	0.938	9.37	0.5	NA	NA
LS VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20
Disc VCT 64	helical	large body	120	100-450	16.00	on	2.5	40	0.984	39.37	0.5	20	20

KNEE RECONS

Name of Series	Thickness	Interval	Recon Algorithm/Mode	Window Width/Level	Recon Direction	
AX BONE	**2.5**	**2.5**	**bone full**	**2500/480**	**head/feet**	**Must be first recon.**
AX THINS	**1.25**	**1.25**	**bone full**	**2500/480**	**head/feet**	**MAVEN specific recon.**
COR BONE	2.5	2.5	bone full	2500/480	front/back	
SAG BONE	2.5	2.5	bone full	2500/480	left/right	
AX SOFT	2.5	2.5	bone full	400/40	head/feet	

CT MAVEN Ankle

PHILIPS PARAMETERS & RECONS

	Scan Mode	kV	Avg mAs	Dose Index	3D Dose	Pitch	Detect	Colli	Rot Time
Incisive 128	helical	120	85	32	on	0.80	64	0.625	1.00

Name of Series	Thick	Interval	Filter	Window	iDose	Recon Direction
AX BONE	3.0	3.0	YC	bone	3	head/feet
AX THINS	**1.0**	**1.0**	**YC**	**bone**	**3**	**head/feet**
COR BONE	3.0	3.0	YC	bone	3	front/back
SAG BONE	3.0	3.0	YC	bone	3	left/right
AX SOFT	3.0	3.0	YC	abdomen	3	head/feet

MAVEN specific recon.

SIMULATED WEIGHT-BEARING CT SCANNING PROTOCOL

MAVEN™ PSI System – APEX 3D™ Total Ankle Replacement

MAVEN™ PATIENT SPECIFIC SURGERY

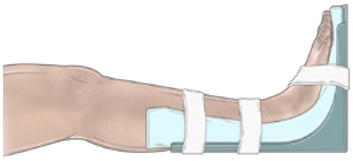
Paragon 28®

PURPOSE:

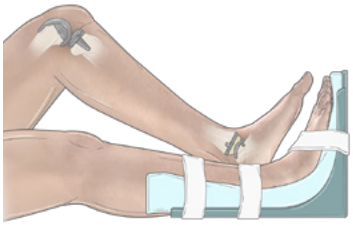
Conduct simulated weight-bearing CT scan for MAVEN™ Patient-Specific Guide and Surgical Planning Case Report creation for the Paragon 28® APEX 3D™ Total Ankle Replacement System. Adhering to this CT scan protocol is critical.

PATIENT POSITION ON CT TABLE:

- **Patient: Supine position**
  - No cushions/wedges under legs or feet; may push metatarsal bases out of the field of view, causing scans to be rejected.



- **Affected leg: Foot in neutral flexion**
  - Foot MUST be perpendicular to table with toes pointed up
  - Holder/brace use is REQUIRED to ensure foot alignment



- **Unaffected leg: Flat on table next to affected leg, UNLESS:**
  - If there is a knee (TKR) or ankle (TAR) implant in the unaffected leg, flex leg to get implant out of plane from affected leg and FOV. Positioned in neutral/90° to the leg. (Use of box or positioning box if necessary).

- **INSTRUCT: Patient CANNOT move during scan OR between scan(s).**

SCAN REQUIREMENTS:

- **Scout**
  - Above knee contiguous – down through extents of foot.
- **Scan**
  - Range: Include full knee to ankle. Ensure complete foot is in view (MUST include metatarsals without cut off; can cut off posterior heel and distal toes). See following page.
  - Scan mode: Helical
  - Gantry tilt: 0°
  - File format: Uncompressed DICOM
  - Pixel size: 0.8mm or smaller in axial view (25cm DFOV preferred, up to 40cm accepted)
- **Reformats: None**
- **Burn: DICOM CD**
  - Upload through website: www.apexankle.com
  - Mail:

Attn: Paragon 28® MAVEN™ TAR PSI
5381 South Alkire Circle
Littleton, CO 80127

SIMULATED WEIGHT-BEARING CT SCANNING PROTOCOL

MAVEN™ PSI System – APEX 3D™ Total Ankle Replacement

MAVEN PATIENT SPECIFIC SURGERY

Paragon 28

CT SCAN PARAMETERS – PARAGON 28 MAVEN TAR PROTOCOL

Exam	Scan Mode	Pitch	Slice Thickness (mm)	Slice Spacing (mm)	kV	mA/Auto mA Noise Index Dose Range	DFOV (cm)	Recon Type
Lower Extremity	Helical	Up to 1	1.25	1.25	120	115	25 preferred (Up to 40 accepted)	Bone 2000/400

- **Continuous Scan:**
  - 5 cm proximal to knee joint through bottom of foot (MUST include metatarsals without cut off; can cut off posterior heel and distal toes; see gray shaded region in figure)

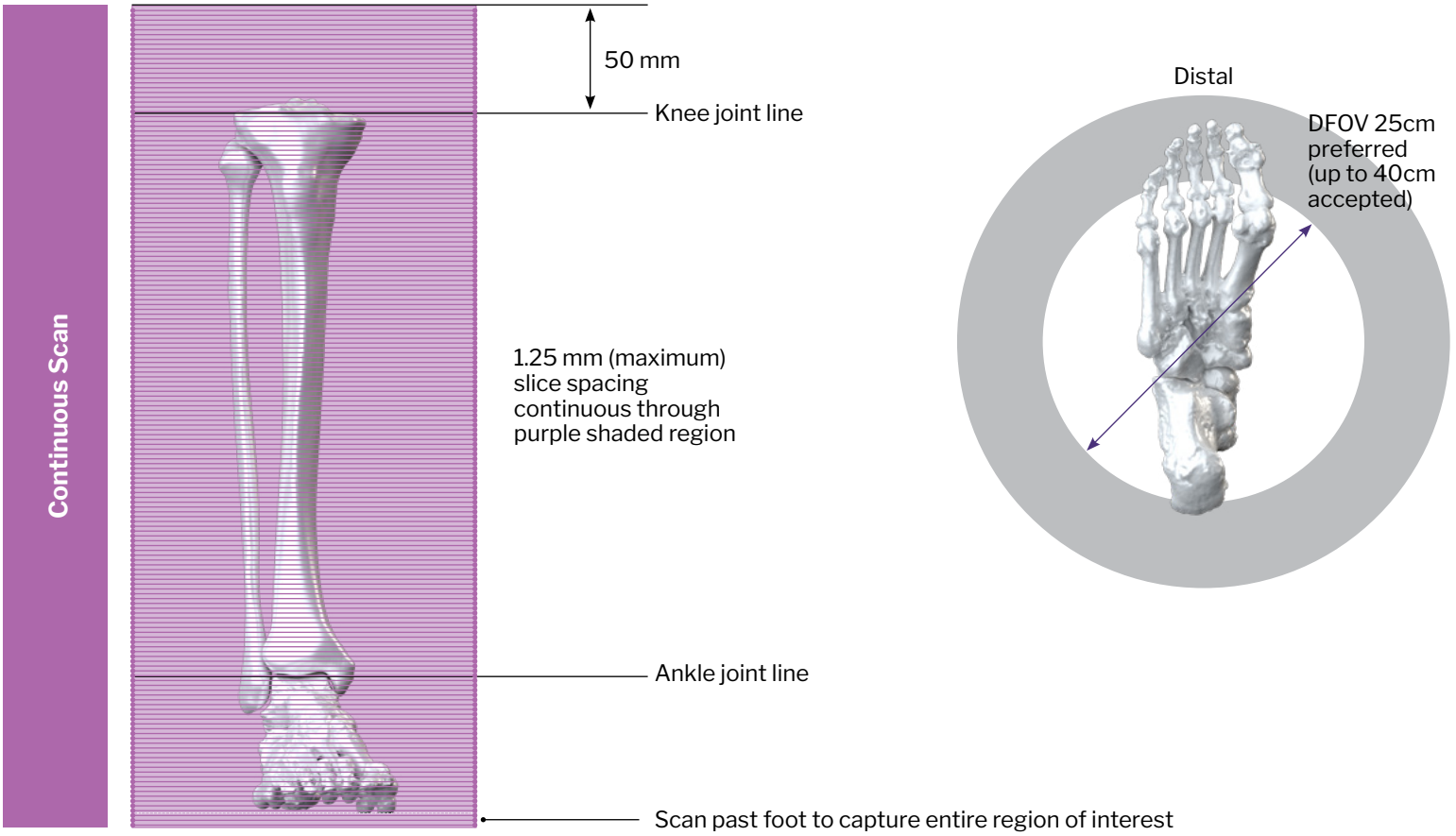


Figure 1. Schematic of scan boundary and slice spacing for continuous knee and ankle scan