

# MRI protocol

## GE Optima 360 1.5T

### MRI Acceptance Criteria

- Zero patient movement while performing scan sequence
- Pad knee well in coil to prevent even slight micro motion
- Knee joint centered to FOV showing equal portions of femur and tibia

ID	Smith & Nephew	Actual
Smith & Nephew ID	116	
Pulse Sequence	2D PD FSE-XL	
Tesla	1.5	
Scan Plane/Frequency Direction	SAG-A/P	
Receive Bandwidth	~31khz	
TR Range	2800 or above	
TE Range	30 approx.	
Echo Train Length	8	
User CV	Interleaved = 0	
Other Options	No Phase Wrap-On; Zip 512, EDR, TRF	
Slice Thickness (mm)	2	
Slice Gap (mm)	0/Interleaved	
Matrix (Frequency x Phase)	512 x 256	
User CV Interleaved	0	
FOV (cm)	22	
NEX	2	
Approximate Scan Time	< 10 min	
Do not use "Asset" or parallel imaging.		

### Initial Set-up Instructions

1. Install and save the MRI sequence protocol to run for future cases as "Smith & Nephew Knee". Label 116 protocol.

### Patient Positioning

1. Patient lying supine, feet first with leg in full extension and knee joint straight (up to a 15 degree bend is acceptable).
2. Restrict leg movement as much as possible, use padding and immobilization devices.
3. Knee joint centered to coil, position the coil as close to isocenter as possible.
4. Scan patient as close to isocenter as possible from left to right. During the validation Smith & Nephew uses a specific phantom to

measure the gradient linearity distortion at isocenter and maximum left position. For accuracy reasons; only a certain amount of distortion can be allowed for the VISIONAIRE process. If distortion values are higher than acceptable, then this scanner is rated Conditional for the Smith & Nephew scan. Only if the patient is scanned in the isocenter to +-30mm, (measured at the center of the knee), can it be guaranteed that the images are accurate. Please place the patient as close to isocenter as possible if scanning for VISIONAIRE. If the patient can't be placed into that position e.g. because of girth do not scan the patient and please inform the surgeon as well as your local Smith & Nephew sales representative.

### Slice Positioning

See figures 1-3 for explanation of FOV centering and slice positioning. The scan must cover the entire bony knee; it is usually suggested to be 1 or 2 slices out of bone on either side. The images must be sagittal to the patient's knee in all 3 planes. Scan slices should be obliqued so that the resulting images are true sagittal, or perpendicular, to the joint line off of the coronal localizer. The slices should be obliqued off of the axial localizer so that the slices are perpendicular to a line drawn across the posterior femoral condyles. Off of the coronal localizer, the slices should be parallel to the femoral & tibial shafts.

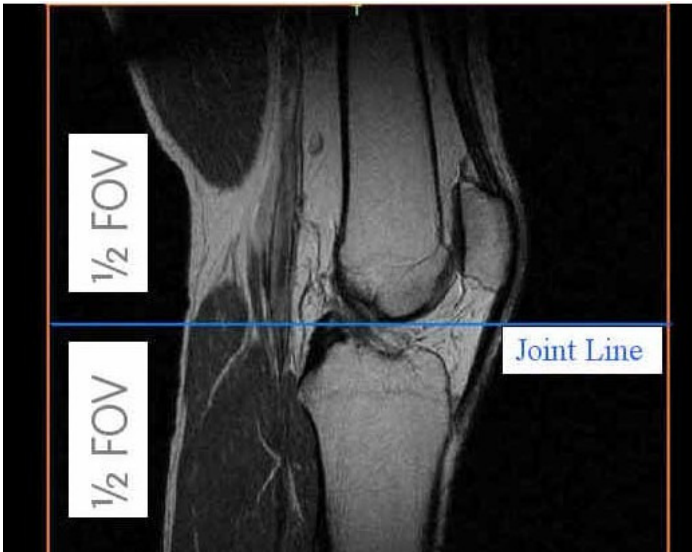
### Saving and Uploading Instructions for Test Images

1. Save DICOM files (Full DICOM format only) data to a CD directly from the MRI scanner or from PACS. Please ensure that no viewers are on this disk. Only actual scan data needs to be saved, no localizers are necessary.
2. Follow the test link in the email provided from Smith & Nephew.
3. Upload test MRI to Smith & Nephew website.

### Delivering Patient Images After Site Approval

1. Your facility will receive a username and password once your site is approved.
2. Login to [www.snVISIONAIRE.com](http://www.snVISIONAIRE.com). Click on the patient's name that is receiving the scans.
3. Zip all image data into one file.
4. Upload the zip file containing both the MRI and X-Ray images as described in the website tutorial.

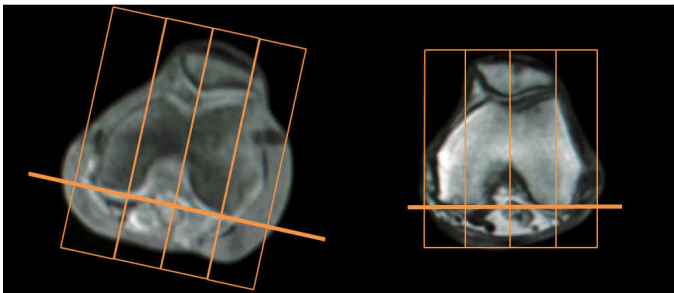
FOV 22cm/220mm



**Figure 1 – Sagittal Localizer**

The patient should be placed in the coil so that the resulting image has equal amounts of femoral and tibial shaft. Due to effective coil coverage some coil cut-off is expected but, this cut-off must be equally distributed and the joint space should be centered in the Field of View, (FOV). Please use sandbags, foam etc. to achieve this. This is essential to avoid patient motion on the resulting images.

FOV 22cm/220mm



**Figure 2 – Axial Localizer**

The slices should be obliqued off of the axial localizer so that the slices are perpendicular to a line drawn across the posterior femoral condyles.

FOV 22cm/220mm



**Figure 3 – Coronal Localizer**

Knee joint centered to FOV showing equal portions femur and tibia. Line drawn parallel to distal femoral condyles is perpendicular to slice position. Slice coverage from R/L covers all knee bone anatomy.

Or

Draw line parallel to distal femoral condyles. Place slices 90 degrees (perpendicular) to this line.

**Contact Info:**

VISIONAIRE Hotline

1-800-262-3536

Option # 1

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