# CERVICAL SPINE WITH/WITHOUT IV CONTRAST 1.5T R5.6

**INSTRUCTIONS AND PATIENT PREPARATION**

| | |
|---|---|
| **Instructions** | Patient change into hospital issued gown and pants |
| **Position** | Supine head first |
| **Coil** | Posterior Coil with dStream Torso Coil OR NVArray Coil |
| **Landmark** | Chin |

**CONTRAST AGENT PARAMETERS**

| Contrast Agent | Dose | Injection Rate |
|---|---|---|
| **Gadopiclenol (VUEWAY)** | 0.05 mmol/kg | Hand Bolus |
| **Saline Flush** | 10-20 mL | Hand Flush |
| **Comments** | • Gadolinium optional. Contrast use is recommended for possible spinal cord tumor, inflammation, or extra-axial spine tumor or in the setting of postoperative spine<br>• If available, use mDIXON XD Fat Sat technique for the postcontrast scans | |

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**MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems**
**Central Nervous System**

IMAGING FORUMS, INC.

**INFO PAGE**

| Scan Description | SURVEY | SAGITTAL T1 | SAGITTAL T2 | SAGITTAL T2 Fat Sat | AXIAL T2 | AXIAL T1 | SAGITTAL T1 +C Fat Sat | AXIAL T1 +C |
|---|---|---|---|---|---|---|---|---|
| **Total scan duration** | 00:31.4 | 03:29.2 | 01:08.0 | 01:45.0 | 03:24.6 | 02:55.0 | 03:27.3 | 03:10.6 |
| **Rel. SNR** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Act. TR (ms)** | — | 513 | 2000 | 2500 | 4447 | 634 | 532 | 635 |
| **Act. TR/TE (ms)** | 26 / 4.4 | — | — | — | — | — | — | — |
| **Act. TE (ms)** | — | 8 | 100 | 90 | 100 | 15 | 8 | 15 |
| **ACQ matrix M x P** | 240 x 200 | 300 x 199 | 320 x 154 | 284 x 131 | 228 x 208 | 200 x 196 | 300 x 198 | 200 x 198 |
| **ACQ voxel MPS (mm)** | 1.25 / 1.50 / 10.0 | 0.80 / 0.81 / 3.00 | 0.75 / 1.03 / 3.00 | 0.85 / 1.22 / 3.00 | 0.79 / 0.87 / 3.00 | 0.90 / 0.92 / 3.00 | 0.80 / 0.80 / 3.00 | 0.90 / 0.91 / 3.00 |
| **REC voxel MPS (mm)** | 0.94 / 0.94 / 10.0 | 0.54 / 0.54 / 3.00 | 0.38 / 0.38 / 3.00 | 0.63 / 0.63 / 3.00 | 0.40 / 0.40 / 3.00 | 0.40 / 0.40 / 3.00 | 0.75 / 0.75 / 3.00 | 0.40 / 0.40 / 3.00 |
| **Scan percentage (%)** | 83 | 99 | 73 | 69 | 91 | 98 | 100 | 99 |
| **Packages** | 3 | 2 | 2 | 2 | 2 | 4 | 2 | 4 |
| **Min. slice gap (mm)** | 0 | 3 | 3 | 3 | 0 | 0 | 3 | 0 |
| **Act. slice gap (mm)** | — | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| **Optimal slices** | — | — | — | — | 21 | 11 | — | 11 |
| **Max. slices** | — | 14 | — | — | — | 44 | 14 | 44 |
| **Act. WFS (pix) / BW (Hz)** | 0.907 / 239.5 | — | — | — | — | — | — | — |
| **Min. WFS (pix) / Max. BW (Hz)** | 0.409 / 531.5 | — | — | — | — | — | — | — |
| **WFS (pix) / BW (Hz)** | — | 0.646 / 336.0 | 0.845 / 257.0 | 0.612 / 354.9 | 0.677 / 320.6 | 0.650 / 334.2 | 0.633 / 342.9 | 0.650 / 334.2 |
| **Full flow comp.** | — | no | — | — | yes | yes | no | yes |
| **TSE es / shot (ms)** | — | 7.8 / 39 | 6.7 / 194 | 5.5 / 175 | 10.0 / 200 | 10.0 / 50 | 7.8 / 39 | 10.0 / 50 |
| **TEeff / TEequiv (ms)** | — | — | 100 / 94 | — | — | — | — | — |
| **Min. TR (ms)** | — | 513 | 1907 | 2221 | 4447 | 634 | 532 | 635 |
| **Local torso SAR** | < 12 % | < 50 % | < 72 % | < 73 % | < 97 % | < 89 % | < 50 % | < 89 % |
| **Whole body SAR / level** | < 0.3 W/kg / normal | < 1.3 W/kg / normal | < 1.8 W/kg / normal | < 1.9 W/kg / normal | < 2.5 W/kg / 1st level | < 2.3 W/kg / 1st level | < 1.3 W/kg / normal | < 2.3 W/kg / 1st level |
| **SED** | 0.0 kJ/kg | < 0.3 kJ/kg | < 0.1 kJ/kg | < 0.2 kJ/kg | < 0.5 kJ/kg | < 0.4 kJ/kg | < 0.3 kJ/kg | < 0.4 kJ/kg |
| **Max B1+rms** | 1.44 uT | 2.99 uT | 3.58 uT | 3.65 uT | 4.17 uT | 3.99 uT | 2.99 uT | 3.99 uT |
| **PNS / level** | 18 % / normal | 49 % / normal | 47 % / normal | 47 % / normal | 47 % / normal | 57 % / normal | 49 % / normal | 57 % / normal |
| **dB/dt** | 12.8 T/s | 48.4 T/s | 48.4 T/s | 43.8 T/s | 41.4 T/s | 52.5 T/s | 48.4 T/s | 52.6 T/s |
| **Sound Pressure Level (dB)** | 0.1 | 10.5 | 9.7 | 10.3 | 15.9 | 17.1 | 11.3 | 17.1 |

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**MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems**
**Central Nervous System**

IMAGING FORUMS, INC.

**GEOMETRY**

| Scan Description | SURVEY | SAGITTAL T1 | SAGITTAL T2 | SAGITTAL T2 Fat Sat | AXIAL T2 | AXIAL T1 | SAGITTAL T1 +C Fat Sat | AXIAL T1 +C |
|---|---|---|---|---|---|---|---|---|
| **SmartSelect** | yes | yes | yes | yes | yes | yes | yes | yes |
| **Uniformity** | — | CLEAR | CLEAR | CLEAR | CLEAR | CLEAR | CLEAR | CLEAR |
| **FOV AP (mm)** | — | 161 | 159 | 160 | 181 | 181 | 159 | 181 |
| **FOV FH (mm)** | 300 | 240 | 240 | 240 | 138 | 138 | 240 | 138 |
| **FOV RL (mm)** | 300 | 43 | 46 | 46 | 181 | 181 | 43 | 181 |
| **FOV (mm)** | (2) 32, (18) 40 | — | — | — | — | — | — | — |
| **ACQ voxel size AP (mm)** | — | 0.8 | 0.8 | 1.1 | 0.8 | 0.9 | 0.8 | 0.9 |
| **ACQ voxel size FH (mm)** | 1.3 | 0.8 | 0.9 | 0.9 | — | — | 0.8 | — |
| **ACQ voxel size RL (mm)** | 1.5 | — | — | — | 0.9 | 0.9 | — | 0.9 |
| **Slice thickness (mm)** | 10 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **Bar orientation** | RL | — | — | — | — | — | — | — |
| **VOI orientation** | transverse | — | — | — | — | — | — | — |
| **VOI size AP (mm)** | 30 | — | — | — | — | — | — | — |
| **VOI size FH (mm)** | 30 | — | — | — | — | — | — | — |
| **VOI size RL (mm)** | 30 | — | — | — | — | — | — | — |
| **Recon voxel size AP (mm)** | — | 0.5 | 0.4 | 0.6 | 0.4 | 0.4 | 0.8 | 0.4 |
| **Recon voxel size FH (mm)** | 0.9 | 0.5 | 0.4 | 0.6 | — | — | 0.8 | — |
| **Recon voxel size RL (mm)** | 0.9 | — | — | — | 0.4 | 0.4 | — | 0.4 |
| **Fold-over suppression** | oversampling | oversampling | oversampling | oversampling | oversampling | oversampling | oversampling | oversampling |
| **A (mm)** | — | 70 | 50 | 50 | — | — | 70 | — |
| **L (mm)** | 150 | — | — | — | 89 | 89 | — | 89 |
| **P (mm)** | — | 20 | 20 | 20 | — | — | 20 | — |
| **R (mm)** | 150 | — | — | — | 90 | 90 | — | 90 |
| **Reconstruction matrix** | 320 | 448 | 640 | 384 | 448 | 448 | 320 | 448 |
| **SENSE** | no | no | no | no | no | no | no | no |
| **CS-SENSE** | no | yes | no | no | yes | yes | yes | yes |
| **reduction** | — | 1.3 | — | — | 1 | 1.2 | 1 | 1.1 |
| **denoising** | — | system default | — | — | system default | system default | system default | system default |
| **k-t Acceleration** | no | no | no | no | no | no | no | no |
| **Stacks** | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **type** | (20) parallel | parallel | parallel | parallel | parallel | parallel | parallel | parallel |
| **Slices** | (20) 3 | 13 | 14 | 14 | 42 | 42 | 13 | 42 |
| **slice gap** | user defined | default | default | default | default | default | default | default |
| **gap (mm)** | (2) 1, (18) 5 | — | — | — | — | — | — | — |
| **slice orientation** | coronal, sagittal, (18) transverse | sagittal | sagittal | sagittal | transverse | transverse | sagittal | transverse |
| **fold-over direction** | RL, FH, (18) AP | AP | AP | AP | RL | RL | AP | RL |
| **fat shift direction** | F, P, (18) L | F | F | F | P | P | F | P |
| **radial axis** | RL, (2) AP, (17) RL | — | — | — | — | — | — | — |
| **radial angle (deg)** | (20) 0 | — | — | — | — | — | — | — |
| **Stacks as Packages** | yes | — | — | — | — | — | — | — |
| **Minimum number of Packages** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Slice scan order** | default | default | default | default | default | rev. central | default | rev. central |
| **Stack scan order** | ascend | — | — | — | — | — | — | — |
| **O-MAR** | — | no | no | no | no | no | no | no |
| **Move table per stack** | no | — | — | — | — | — | — | — |
| **Large table movement** | no | no | no | no | no | no | no | no |
| **Stack alignment** | no | — | — | — | — | — | — | — |
| **Stack sort order** | no | — | — | — | — | — | — | — |
| **PlanAlign** | no | no | no | no | yes | yes | no | yes |
| **REST slabs** | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| **type** | — | free | free | — | free | — | free | — |
| **orientation** | — | coronal | coronal | — | coronal | — | coronal | — |
| **thickness (mm)** | — | 30 | 61 | — | 30 | — | 30 | — |
| **orientation** | — | — | — | — | — | — | sagittal | — |
| **Interactive positioning** | no | no | no | no | no | no | no | no |
| **Patient position** | head first | head first | head first | head first | head first | head first | head first | head first |
| **Patient body position** | head first | head first | head first | head first | head first | head first | head first | head first |
| **Patient orientation** | supine | supine | supine | supine | supine | supine | supine | supine |
| **Patient body orientation** | supine | supine | supine | supine | supine | supine | supine | supine |

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**MR Gadopiclenol (VUEWAY®) Protocol for Philips Healthcare Systems**
**Central Nervous System**

IMAGING FORUMS, INC.

**CONTRAST**

| Scan Description | SURVEY | SAGITTALT1 | SAGITTALT2 | SAGITTALT2 Fat Sat | AXIALT2 | AXIALT1 | SAGITTALT1 +C Fat Sat | AXIALT1 +C |
|---|---|---|---|---|---|---|---|---|
| **Scan type** | Imaging | Imaging | Imaging | Imaging | Imaging | Imaging | Imaging | Imaging |
| **Scan mode** | MS | MS | MS | MS | MS | MS | MS | MS |
| **technique** | FFE | SE | SE | SE | SE | SE | SE | SE |
| **Contrast enhancement** | no | — | — | — | — | — | — | — |
| **Modified SE** | — | no | no | no | no | no | no | no |
| **Acquisition mode** | cartesian | cartesian | cartesian | cartesian | cartesian | cartesian | cartesian | cartesian |
| **Fast Imaging mode** | none | TSE | TSE | TSE | TSE | TSE | TSE | TSE |
| **shot mode** | — | multishot | multishot | multishot | multishot | multishot | multishot | multishot |
| **TSE factor** | — | 5 | 28 | 32 | 19 | 5 | 5 | 5 |
| **TE spacing** | — | — | user defined | — | — | user defined | — | user defined |
| **(ms)** | — | — | 7 | — | — | 10 | — | 10 |
| **startup Echoes** | — | — | — | — | — | — | — | — |
| **profile order** | — | low_high | asymmetric | linear | linear | asymmetric | low_high | asymmetric |
| **DRIVE** | — | no | yes | no | yes | no | no | no |
| **ultrashort** | — | no | yes | yes | no | no | no | no |
| **fid reduction** | — | default | default | default | default | default | strong | default |
| **Echoes** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **partial echo** | no | no | no | no | no | no | no | no |
| **shifted echo** | no | — | — | — | — | — | — | — |
| **TE** | shortest | user defined | user defined | user defined | user defined | user defined | user defined | user defined |
| **(ms)** | — | 7.8 | 100 | 90 | 100 | 15 | 7.8 | 15 |
| **Flip angle (deg)** | 45 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| **Refocusing control** | — | no | constant | no | no | no | no | no |
| **angle (deg)** | — | — | 140 | — | — | — | — | — |
| **TR** | shortest | range | range | range | range | range | range | range |
| **minimum (ms)** | — | 400 | 2000 | 2500 | 3000 | 350 | 400 | 350 |
| **maximum (ms)** | — | 600 | 4000 | 4000 | 6000 | 750 | 600 | 750 |
| **Halfscan** | no | no | no | no | no | no | no | no |
| **Water-fat shift** | maximum | maximum | maximum | maximum | maximum | maximum | maximum | maximum |
| **Shim** | — | default | default | auto | auto | default | volume | default |
| **ShimAlign** | — | — | — | — | — | — | yes | — |
| **mDIXON** | no | no | no | no | no | no | no | no |
| **Fat suppression** | no | no | no | SPAIR | no | no | SPIR | no |
| **strength** | — | — | — | — | — | — | strong | — |
| **power** | — | — | — | 1 | — | — | — | — |
| **inversion delay** | — | — | — | auto | — | — | — | — |
| **suppr. level** | — | — | — | strong | — | — | — | — |
| **frequency offset** | — | — | — | default | — | — | default | — |
| **Water suppression** | no | no | no | no | no | no | no | no |
| **MTC** | no | no | no | no | no | no | no | no |
| **Diffusion mode** | no | no | no | no | no | no | no | no |
| **T1 mapping** | no | no | no | no | no | no | no | no |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SAR mode** | high | low | moderate | high | high | high | low | high |
| **B1 mode** | default | default | default | default | default | default | default | default |
| **SAR allow first level** | yes | yes | yes | yes | yes | yes | yes | yes |
| **Patient pregnancy** | no | no | no | no | no | no | no | no |
| **Patient WB SAR [W/kg]** | — | — | — | — | — | — | — | — |
| **Patient Head SAR [W/kg]** | — | — | — | — | — | — | — | — |
| **Patient max. dB/dt [T/s]** | — | — | — | — | — | — | — | — |
| **Max slewrate [T/m/s]** | — | — | — | — | — | — | — | — |
| **Max. B1+rms [uT]** | — | — | — | — | — | — | — | — |
| **PNS mode** | low | low | low | low | moderate | moderate | low | moderate |
| **Gradient mode** | regular | default | default | default | default | default | default | default |
| **SofTone mode** | no | no | no | no | no | no | no | no |

**MOTION**

| Scan Description | SURVEY | SAGITTAL T1 | SAGITTAL T2 | SAGITTAL T2 Fat Sat | AXIAL T2 | AXIAL T1 | SAGITTAL T1 +C Fat Sat | AXIAL T1 +C |
|---|---|---|---|---|---|---|---|---|
| **Cardiac synchronization** | no | no | no | no | no | no | no | no |
| **Respiratory compensation** | no | no | no | no | no | no | no | no |
| **Navigator respiratory comp** | no | no | no | no | no | no | no | no |
| **Flow compensation** | no | sensitized | no | no | yes | yes | sensitized | yes |
| **direction** | — | — | — | — | through-plane | in-plane | — | in-plane |
| **Temporal slice spacing** | default | default | default | default | default | default | default | default |
| **fMRI echo stabilisation** | no | — | — | — | — | — | — | — |
| **Motion smoothing** | — | yes | no | yes | yes | no | yes | no |
| **NSA** | 1 | 4 | 2 | 3 | 1 | 1 | 3 | 1 |
| **SMART** | — | yes | no | yes | — | — | yes | — |
| **MRE enable** | no | no | no | no | no | no | no | no |

**DYNAMIC ANGIO**

| Scan Description | SURVEY | SAGITTAL T1 | SAGITTAL T2 | SAGITTAL T2 Fat Sat | AXIAL T2 | AXIAL T1 | SAGITTAL T1 +C Fat Sat | AXIAL T1 +C |
|---|---|---|---|---|---|---|---|---|
| **Angio / Contrast enh.** | no | — | — | — | — | — | — | — |
| **Quantitative flow** | no | — | — | — | — | — | — | — |
| **Manual start** | no | no | no | no | no | no | no | no |
| **Dynamic study** | no | no | no | no | no | no | no | no |
| **Arterial Spin labeling** | no | no | no | no | no | no | no | no |

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**Central Nervous System**

IMAGING FORUMS, INC.

**POST PROCESSING**

| Scan Description | SURVEY | SAGITTAL T1 | SAGITTAL T2 | SAGITTAL T2 Fat Sat | AXIAL T2 | AXIAL T1 | SAGITTAL T1 +C Fat Sat | AXIAL T1 +C |
|---|---|---|---|---|---|---|---|---|
| **Preparation phases** | — | auto | auto | auto | auto | auto | auto | auto |
| **Interactive F0** | no | no | no | no | no | no | no | no |
| **Quick Survey** | default | default | default | default | default | default | default | default |
| **MIP/MPR** | no | no | no | no | no | no | no | no |
| **SWIp** | no | — | — | — | — | — | — | — |
| **Images** | M, (3) no | M, (3) no | M, (3) no | M, (3) no | M, (3) no | M, (3) no | M, (3) no | M, (3) no |
| **Autoview image** | M | M | M | M | M | M | M | M |
| **Calculated images** | (4) no | (4) no | (4) no | (4) no | (4) no | (4) no | (4) no | (4) no |
| **Reference tissue** | Skeletal muscle | Skeletal muscle | Skeletal muscle | Skeletal muscle | Skeletal muscle | Skeletal muscle | Skeletal muscle | Skeletal muscle |
| **Recon compression** | No | No | No | No | No | No | No | No |
| **Preset window contrast** | hard | intermediate | intermediate | intermediate | hard | hard | intermediate | hard |
| **Reconstruction mode** | real time | real time | real time | real time | immediate | real time | real time | real time |
| **Save raw data** | no | no | no | no | no | no | no | no |
| **Hardcopy protocol** | no | no | no | no | no | no | no | no |
| **Image filter** | system default | system default | system default | system default | system default | system default | system default | system default |
| **Uniformity correction** | no | no | no | no | no | no | no | no |
| **Geometry correction** | default | default | default | default | default | default | default | default |
| **IF_info_seperator** | 1634755923 | 1634755923 | 1634755923 | 1634755923 | 0 | 0 | 1634755923 | 0 |

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