Technical specification for 3T MRI

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| **No.** | **Technical Specifications** | Min KAUH Requirement | Yes/ No | Answer/Catalog Page Number |
| 1. | **Manufacturer** | Please specify manufacturer and country of origin For each component |  |  |
| 2. | Model Number | Top of the line & please specify model number of the offered equipment |  |  |
| 3. | Safety standard | FDA approval or CE marking  ( USA brand must have FDA) |  |  |
| 4. | Magnet type  Shielding | Super conducting  Active |  |  |
| 5. | Field strength (T) | 3 T |  |  |
| 6. | 5-Gauss fringe field  Radial/axial, m | ≤ 3.5/5.5 (active shield) |  |  |
| 7. | Shimming | Passive and Active |  |  |
| 8. | **Table:** |  |  |  |
|  | - Min. load with accuracy (kg)  - Scan Range | 250 kg  ≥ 200cm |  |  |
|  | - Min. vertical travel (cm) | ≤ 60 cm |  |  |
| 9. | **Top of the line Gradient subsystem:** |  |  |  |
|  | - Strength ,mT/m | ≥42 |  |  |
|  | - Slew rate , T/m/s per axis | ≥ 200 |  |  |
|  | - Duty cycle  - Guaranteed Homegeuity (V-RMS)40cm DSV ppm | 100 %  ≤0.5, lower is preferred |  |  |
| 10. | **RF system**  **Multi-Transmit RF technology**  **Dynamic Range** | Latest model Top of the line, min (96) channels independent receiver channels.  Included  ≥ 150 |  |  |
| 11. | **Computer system:** |  |  |  |
|  | - CPU | Top of the line |  |  |
|  | - Storage media | Hard disc and Super DVD/RW |  |  |
|  | - No. Images stored | Please specify no. of images @  (512 x 512) |  |  |
| 12. | Full DICOM | Included , Licensed & Operative for both console & workstation |  |  |
| 13. | **Reconstruction speed:** | ≥ 64000 recon/sec (256×256 FFT, full FOV) |  |  |
| 14. | Cardiac gating  ECG / peripheral  Wireless is preferred | Included |  |  |
| 15. | Respiratory gating  Wireless is preferred | Included |  |  |
| 16. | Angiography  (With peripheral) | Included (with 2-D & 3-D) |  |  |
| 17. | **Imaging:** |  |  |  |
|  | - Pulse sequences | Please specify pulse sequences ; (e.g. SE , IR , 2-D/3 , EPI , … etc.) |  |  |
|  | - Dynamic imaging | Included |  |  |
|  | - Parallel Imaging | Included |  |  |
|  | - Repetition time, msec | Please specify your range |  |  |
|  | - Echo time, msec | Please specify your range |  |  |
|  | - Inversion time, msec | Please specify your range |  |  |
|  | - Min Slice thickness, mm (2-D) | ≤ 0.5 |  |  |
|  | - Min Slice thickness, mm (3-D) | ≤ 0.1 |  |  |
|  | - FOV, cmX,Y,Z | ≥ 50 cm |  |  |
|  | - FOV offsets | In all directions |  |  |
|  | - Scan orientations | Axial, sagittal , coronal , oblique and double oblique |  |  |
|  | - Measuring matrix | 1024 x 1024 |  |  |
|  | - Display matrix | 1024 x 1024 |  |  |
|  |  |  |  |  |
|  | - Image processing | Addition, subtraction, … etc. |  |  |
| 18. | Bore diameter, cm | ≥70 cm |  |  |
| 19. | Bore features  LCD Screen on gantry | Light &Sound , ventilation and intercom  Included |  |  |
| 20. | Cooling system type | Closed loop chilled water |  |  |
| 21. | Cryogen use, L/hr  Liquid helium | Zero boil off |  |  |
| 22. | Magnet weight, kg | Please specify ,lighter weights are preferred |  |  |
| 23. | H x W x L, cm | Please specify, smaller dimensions are preferred |  |  |
| 24. | Included Items | * UPS Included as recommended by the manufacturer for whole system * Color monitor (> 21") * Ethernet connection * Auto injector (non magnetic) * I.V. Stand (non magnetic) * Patent trolley (non magnetic) * Vital Sign Monitor (non magnetic) * Anesthesia with Ventilator (non magnetic) * Wheel chair (non magnetic) |  |  |
| 25. | RF coils  The offer must included the latest with the highest channels No of the available coils with the system. | -Please specify the specifications of the following required coils :  Body  Head/Neck  Spine  Knee  foot  Breast  Shoulder  FlexibleCoil  Flex coil M  Neurovascular coil  -Please specify other optional recommended coils |  |  |
| 26. | Clinical Application Packages | Body Package  Neuro Package  Angio Package  Pediatric Package  Onco Package  Ortho Package  Liver Calculation Package  Spectroscopy for all body parts available (brain, prostate, liver, breast)  Metal artifact reduction  Dixon TSE & Gradient  Whole body imaging  Body Diffusion  2D & 3DMotion correction  Noise Reduction technology  Guided sound and auto voice  DTI&Tractography  SWI  Zoomed DWI  Bold imaging  Functional MRI system with  clinical application (price optionally)  Cardiac MRI Package (price optionally)  Reduce imaging time technique with same/ better image quality (Compressed sensing or equivalent), please specify the sequence and exams.  Please specify other optional recommended Packages |  |  |
| 27 | Contrast media injector for MRI | * Angiography designed * Electromechanical syringe * Electrical and automatic volume stop mechanism * Must accept syringe barrel heater * Pedestal mount or hung * Dual head Auto Injector * 50 boxes of disposable syringes   included with patient tube |  |  |
| 28. | Electromagnetic interference (EMI) | Unit must not be effected by EMI radiation |  |  |
| 29. | **Power requirements:**   * Line voltage, V * kVA * A/C, BTU/hr | * Power input to be 3 phase 380 V AC, 50Hz. * Resettable over current breaker & spike protector shall be provided * Please specify your no. * Please specify your no. |  |  |
| 30. | Chair with castors  L shape desk with synthetic material disk top | 6 heavy duty adjustable height chairs  Included |  |  |
| 31. | Other specifications | Please specify |  |  |
| 32 | External user training for three Radiologist and one technician | included |  |  |
| 33 | On-site training for 10 days | included |  |  |

**Technical Specifications for *Digital Mobile X-ray***

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| **No.** | **Technical Specifications** | **Min KAUH Requirement** |
| 1 | Manufacturer | Please specify manufacturer and country of origin |
| 2 | Model Number | Please specify model number of the offered equipment |
| 3 | Safety standard | FDA approval or CE marking |
| 4 | Features: | * AC line: Single Phase. * External charger one for each device, with four (4) batteries for each unit .required . * Compartment for storage and charging FPD batteries , required . * Battery: required. * Battery: Lead acid or Ni-cd. orlithium-ion. * Charging time, full charge, hr.: please specify. * X-RAY TUBE ANODE: Rotating. * Heat capacity, HU: NOT LESS THAN 140,000. * Cooling, HU/min: NOT LESS THAN 14,000. * Range: 40-120. * Increments: Yes. * Dual Focal spot: required. * built-in display monitor: not less than 15”. * fulldicom 3.0 RIS,HISpacs support: Required. * WEIGHT, kg: PLEASE SPECIFY. * Proximity badge reader, preferably present . |
| 5 | Maximum output, kVp | 120 |
| 6 | mAs range | 0.5-200 |
| 7 | X-Ray Generator Features: | * Power rating, kW @ 100 kVp: not less than 16 kw (nominal). * ALUMINUM FILTER, mm: please specify integrated or manual. * SID RANGE, cm: 100-200. |
| 8 | Tube Movement: | * Horizontal, cm: 45 * Vertical, cm: 130 * Rotation: * Z-axis, °: ±90. * X-axis, °: ±90. * Column type (Telescopic and collapsible ) , required . * Anti Collision Sensor and Break: Required. * SELF-PROPELLED: Required. * Speed, mph: 0-3. * Anti scatter grid to be included: Please specify. |
| 9 | Digital Detector Features: | * Type: CSI. * Wireless: Required. * Size, cm: 35x43. * Number of images per battery charge: please specify. * PATIENT-CENTERING/ COLLIMATOR LIGHT: Required. * Detector resolution MINIMUM: Please Specify. * DQE: Please Specify. * Detector holder , two for each unit. |
| 10 | Main Power | 220 - 240 VAC , 50 Hz |