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 typeShielding | Super conducting Active |  |  |
| 5. | Field strength (T) | 3 T |  |  |
| 6. | 5-Gauss fringe fieldRadial/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 gatingECG / peripheralWireless 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 featuresLCD Screen on gantry | Light &Sound , ventilation and intercomIncluded |  |  |
| 20. | Cooling system type | Closed loop chilled water  |  |  |
| 21. | Cryogen use, L/hrLiquid 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 :BodyHead/Neck SpineKneefoot BreastShoulderFlexibleCoilFlex coil M Neurovascular coil-Please specify other optional recommended coils  |  |  |
| 26. | Clinical Application Packages | Body PackageNeuro PackageAngio PackagePediatric PackageOnco PackageOrtho PackageLiver Calculation PackageSpectroscopy for all body parts available (brain, prostate, liver, breast)Metal artifact reduction Dixon TSE & GradientWhole body imaging Body Diffusion2D & 3DMotion correction Noise Reduction technology Guided sound and auto voiceDTI&TractographySWI Zoomed DWIBold imagingFunctional 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 castorsL shape desk with synthetic material disk top | 6 heavy duty adjustable height chairsIncluded  |  |  |
| 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.
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| 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.
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| 10 | Main Power  | 220 - 240 VAC , 50 Hz |