

# Technical Specifications of OPER-0.5 MRI System

## Magnet

Type: Permanent magnet, eddy current free, open C type & self-temperature control

Field strength: 0.5T  $\pm$  3%

Field homogeneity:  $< \pm 1.5\text{ppm(FWHH)}/20\text{cm DSV}$

$< 3\text{ppm(VRMS)}/40\text{cm DSV}$

Vertical gap distance: 40cm

## Gradient system

**Amplifier:**

Field strength: single axis 24mT/m

Gradient rise time: 0.33ms

Slew rate: single axis, 73mT/m/ms

Nonlinearity: 40cm\*40cm\*38cm ellipsoid  $< 5\%$

## RF transmitting & receiving system

Type of transmitter & receiver: Digital

Number of channels: 4

Frequency range: DC-25MHZ

Maximum receiver bandwidth: 1.25MHZ

Pre-amplifier: gain 30dB

Noise figure: 0.3dB

RF amplifier:  $\geq 6\text{kw}$

RF transmitting coil: panel transmitting coil

RF receiving coil: phased array coil(4channels)

## Auto pre-scan function

Auto RF correction, auto frequency lock, auto gain, auto coil identification, auto coil tuning, active shim

## Image specifications

Image types: T1 weighted image, T2 weighted image, T2\* weighted image, PD weighted image, diffusion weighted image, fat suppressed image, water suppressed image, fat-water separation image, Magnetic resonance hydrography (MRCP MRM MRU), MRA

Field of view: 40mm-400mm

Acquisition matrix: 64x64-512x512

Graphics matrix max.: 1024x1024

Body in 30cm FOV: 1.5mm

Head in 24cm FOV: 1mm

Orientation:

Slice orientation: transverse, sagittal, coronal, free oblique, multi-slice & multi-range

Slice gap: 0-20mm

## **Pulse sequence**

Spin echo (SE)

Multi-slice & Multi-echo (MSME)

Fast Spin Echo (FSE)

Single shot fast spin echo (SSFSE)

Multi shot fast spin echo (MSFSE)

Inversion recovery (IR)

Short inversion time IR (STIR)

Fluid attenuated IR (FLAIR): T1W, T2W

Inversion recovery fast spin echo (IRFSE)

Gradient echo (GRE): 2D/3D

Fast gradient echo (FGRE)

Spoiling gradient echo (SGRE)

Variable low angle gradient echo

Enhanced gradient echo

Steady state process GRE (SSPGRE)

MRA: TOF 2D/3D

PC 2D/3D

CE-MRA

Echo Planar Imaging (EPI)

## **Image display & post processing**

Image post processing: filter, zoom, cut, text illustration & elimination, image offset, auto adjustment of window length & width

Image analysis: interested area illustration, distance measurement

## **Patient Management**

Talkback system

Patient bed bearing - 180Kg Max.

## **Computer system**

Main: dual-core processor ( $\geq 2.8$ GHz)

Network controller: 1000Mbps

Memory: 2 GB

Graphics memory: 128MB

Hard driver: 160 GB

Removable storage: DVD + RW

Image reconstruction: (256x256) 285 Frames/s

21" TFT monitor with at least 1280x1024 resolution

**DICOM 3.0 with compatibility**