

## TERMS AND REQUIREMENTS SITE SURVEY

### Goal

Measurement of the magnetic disturbances (B0) and the building vibrations at the ISO center location of the future MR during normal operation hours of the hospital to find out whether the location is within the specifications or not.

### Stakeholders

- Project manager of MRI vendor
- Site Survey Engineer of IMEDCO
- Representative of the hospital or clinic which can provide access to all rooms of the site and which knows the technical details of the building

### Actions

- Measurement of the magnetic fields with their fluctuations in all three room directions. The survey will be performed with a three axis fluxgate sensor. The frequency range covers DC (0 Hz) to 1000 Hz.
- Vibration measurement on the floor of the magnet room. The frequency range covers 1 to 100 Hz.

### Requirements

- A drawing of the planned MRI with adjacent rooms should be sent to IMEDCO a few days before the site survey starts.
- Electric power (230 V or 110 V; 50/60 Hz) is available. A power outlet should be available within 10 m from the planned isocenter.
- The planned area should be available during the whole measurements. The sensor should be placed at the planned isocenter.
- Ambient temperature < 30°C, no fast fluctuation of temperature is allowed.
- The static magnet field at the place of the sensor has to be less than 1 mT (10 Gauss).
- Equipment that will be removed before the installation of the MRI system has to be shut down during the measurements.
- The necessary time for the survey should not be less than 4 hours.
- During the measurements no construction work is allowed since this would affect the vibration measurements (closer than 10m to the pick-up sensor). No heavy construction work on the same floor and the floor above and below.
- During the measurements, nobody should move within the area of the planned magnet room.
- Walking people in the vicinity of the vibration sensor can generate some transient vibrations out of the specs.

- Other parts of the building shall be in regular operation, i.e. equipment in the adjacent rooms, which will be in operation after the MRI system is installed, shall be in use.
- If there are any elevators or car traffic with 20 m from the planned isocenter, the impact of these activities has to be checked in working conditions.
- There should be access to the adjacent rooms on the same floor, above and below the planned magnet room for a short inspection.
- It is required to have a representative of the MRI manufacturer or from the hospital available on site during the measurements at least the first 1.5 h of the site survey.
- Somebody should be able to give information about the building and the installed equipment, if necessary.
- The approx. load of any power transformers and electric power cables, with a current of more than 20 Amps, within 20 m from the planned isocenter should be known.
- Any equipment (cooling, air conditioning, back-up generators, etc.) that can be in operation together with the MRI system shall be ready to start during the measurements, if it is not already in operation.
- If there are railway tracks within 100 m from the planned isocenter, the measurements have to be done during the time the trains are in operation, recommended during rush hour.