

DETAILED BRAIN FUNCTION MAPPING  
EPILEPSY TREATMENT  
GREATER OPERATING PRECISION  
BRAIN MALFUNCTION IDENTIFICATION

**THE MEG**  
(MAGNETOENCEPHALOGRAPHY)  
**SCANNER**

# MEG FACTS

Things that make the MEG advanced and exciting.

**MEG IS SO SENSITIVE AND POWERFUL** it can detect magnetic readings from cars passing by on the street, from power lines, from cell phones and from heavy construction equipment (like bulldozers) up to 20 city blocks away. The magnetic fields created by the brain are a billion times smaller than the Earth's magnetic field – that which turns a compass.

**MEG SCANNERS ARE TYPICALLY BURIED IN BASEMENTS** of medical centers to avoid interference from environmental magnetic fields. The Nebraska Medical Center MEG room can be located above ground because it is equipped with a “smart shield” which cancels out external magnetic fields.

**THE DOOR OF THE MEG ROOM LOOKS LIKE A BANK VAULT DOOR.** It is created out of aluminum and mu metal (a nickel-iron alloy that has high magnetic permeability).

**THE MEG SCANNER IS FILLED WITH 75 GALLONS OF LIQUID HELIUM EVERY WEEK.** Without helium, the MEG sensors are just tiny metallic elements with little use. The helium chills the inside of the MEG to -452 degrees Fahrenheit or near absolute 0 degrees Kelvin, a temperature where molecular motion practically stops. At this temperature, the MEG sensors gain superconducting properties and can detect magnetic fields.