



E-Song America, Inc.

100%
RoHS Compliant
Products

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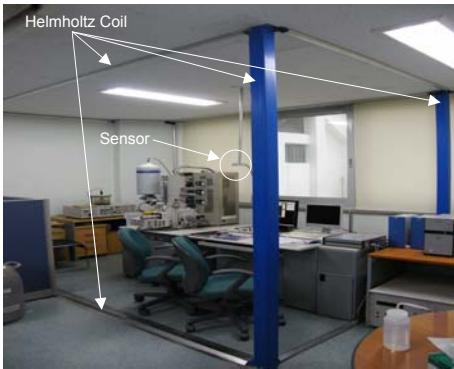
MAGNETIC FIELD CANCELLING DEVICE: MAGECLIPSE Model 1000

Characteristic

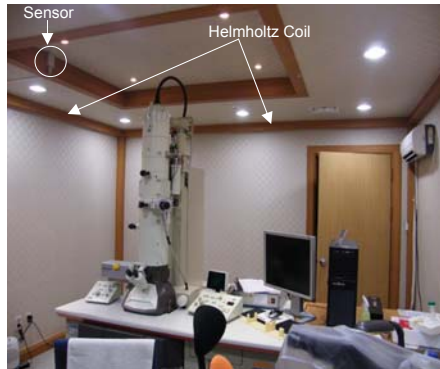
MagEclipse is a system to protect Electron Microscopes and other sensitive equipment such as MRI systems by cancelling out the magnetic field from various sources, affecting performance of these equipment. Fluctuation in Earth's magnetic field, high-voltage electric transmission lines, cars, trains, electric power stations, elevators, and even vibration of building cause unwanted magnetic field of varying frequencies. Several other systems are available in the market, but all are much more costly solutions compared to MagEclipse.

MagEclipse consists of a Control Unit, one or two sensors, and Helmholtz Coils. It creates a magnetic-field safe space encompassing the sensitive equipment being protected. It generates opposing magnetic field, effectively cancelling each other. It is simple, easy to install, and cost-saving system. MagEclipse system can be pre-installed in a SEM (scanning electron microscope) or a TEM (transmission electron microscope) if it has an enclosure, so that a SEM or TEM can be installed without regard to the presence of unwanted magnetic field at the installation site. Often, a purchaser of an electron microscope needs to find magnetic-field-free installation site or must build a costly shielded room to place the microscope. MagEclipse can be retrofit easily without physical walls, without need of relocating the microscope during installation, and at far less expense and time.

Actual Installations and Attenuation of Magnetic Field



Hitachi SEM S4300
Inha University, South Korea
Interference from electric power lines
Without MagEclipse: 4 mG (180 Hz)
With MagEclipse: 1 mG (180 Hz)



Jeol SEM
Hanlim University, South Korea
Interference from cars and subway trains
Without MagEclipse: 15 mG (0.1 - 2 Hz)
With MagEclipse: 0.5 mG (0.1 - 2 Hz)



Jeol SEM JSM7401F
Seoul National University, South Korea
Interference from subway trains
Without MagEclipse: 12 mG (0.1 - 2 Hz)
With MagEclipse: 0.5 mG (0.1 - 2 Hz)



Hitachi MRI Elite 0.3T
Yunse Hospital, South Korea
Interference from cars and subway trains
Without MagEclipse: 15 mG (0.1 - 2 Hz)
With MagEclipse: 1 mG (0.1 - 2 Hz)



Hitachi MRI Elite 0.3T
Kibyungsu Hospital, South Korea
Interference from cars
Without MagEclipse: 30 mG (- 1 Hz)
With MagEclipse: 1 mG (- 1 Hz)



Philips 3T
Jaesang Hospital, South Korea
Interference from cars
Without MagEclipse: 15 mG (- 1 Hz)
With MagEclipse: 3 mG (- 1 Hz)

Other Installations:

Joel 2000EX
KAIST, South Korea
Interference from electric power lines
Without MagEclipse: 5 mG (60 Hz)
With MagEclipse: 0.4 mG (60 Hz)

Joel FB-2100F
Sogang University, South Korea
Interference from subway trains
Without MagEclipse: 5 mG (0.1 - 2 Hz)
With MagEclipse: 0.5 mG (0.1 - 2 Hz)

Topcon EBS3000
Hynix, South Korea
Interference from power lines and etcher
Without MagEclipse: 4 mG (60 Hz & 3 Hz)
With MagEclipse: 0.5 mG (60 Hz & 3 Hz)

Other Installations (continued)

Joel
 Nano Fab. Center, South Korea
 Interference from elevator
 Without MagEclipse: 2.5 mG (0.1 - 2 Hz)
 With MagEclipse: 0.3 mG (0.1 - 2 Hz)

Hitachi Elite 0.3T
 Paju Hospital, South Korea
 Interference from cars
 Without MagEclipse: 30 mG (- 1 Hz)
 With MagEclipse: 1 mG (- 1 Hz)

Hitachi Elite 0.3T
 Kimcheon Hospital, South Korea
 Interference from cars
 Without MagEclipse: 6 mG (- 1 Hz)
 With MagEclipse: 1 mG (- 1 Hz)

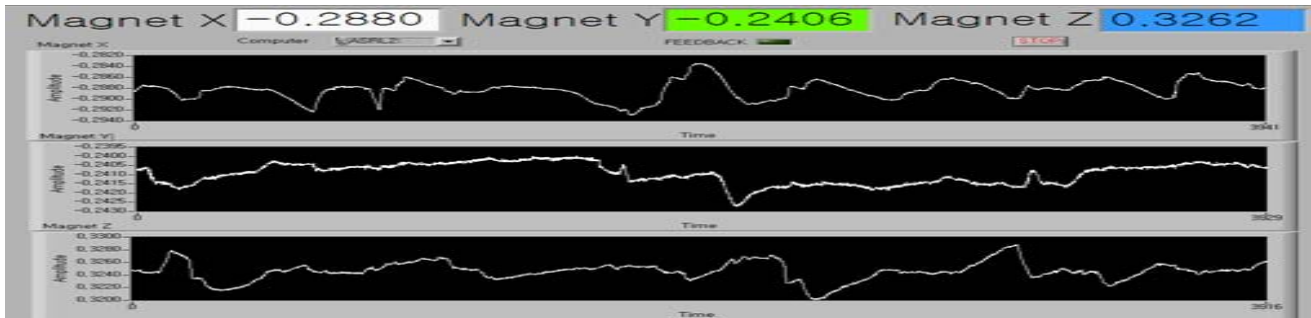
Philips 1.5T
 Y. Sarang Hospital, South Korea
 Interference from cars and subway trains
 Without MagEclipse: 10 mG (0.1 - 2 Hz)
 With MagEclipse: 3 mG (0.1 - 2 Hz)

Hitachi Elite 0.3T
 Yanggi Hospital, South Korea
 Interference from subway trains
 Without MagEclipse: 12 mG (- 0.1 Hz)
 With MagEclipse: 1 mG (- 0.1 Hz)

Hitachi Elite 0.3T
 Korea Hospital, South Korea
 Interference from cars and subway trains
 Without MagEclipse: 15 mG (0.1 - 2 Hz)
 With MagEclipse: 1 mG (0.1 - 2 Hz)

■ X, Y, and Z Components of Magnetic Field Generated by Train

Before installing MagEclipse



Maximum Variation value of Magnetic Field - X axis :12mG , Y axis : 3.5mG, Z axis : 10mG

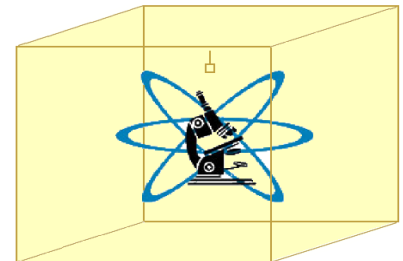
After installing MagEclipse



Maximum Variation value of Magnetic Field - X axis :0.2mG , Y axis : 0.3mG, Z axis : 0.3mG

■ MagEclipse 1000 Specifications

- Cancellation Frequency Range: DC to 200 HZ AC
- Maximum Cancellation Magnetic Field: 50 mG (each axis)
- Cancellation Rate: Approx. 1/30 attenuation at 10 Hz
- Sensor Resolution: 0.1 mG
- Power: AC 100 - 220V 50/60 Hz
- Controller Box Size: 300mm W x 100mm H x 300mm D, Approx. 4 Kg
- Cancellation Coil: 20 turns, Approx. 20 Kg
- Magnetic Sensor: 20mm W x 50mm H x 100mm D, Approx. 0.02 Kg
- Stand for Sensor: 1,000mm, Approx. 5 Kg
- Note: Use one sensor for SEM or TEM, two sensors for MRI



Control Unit



Sensor

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