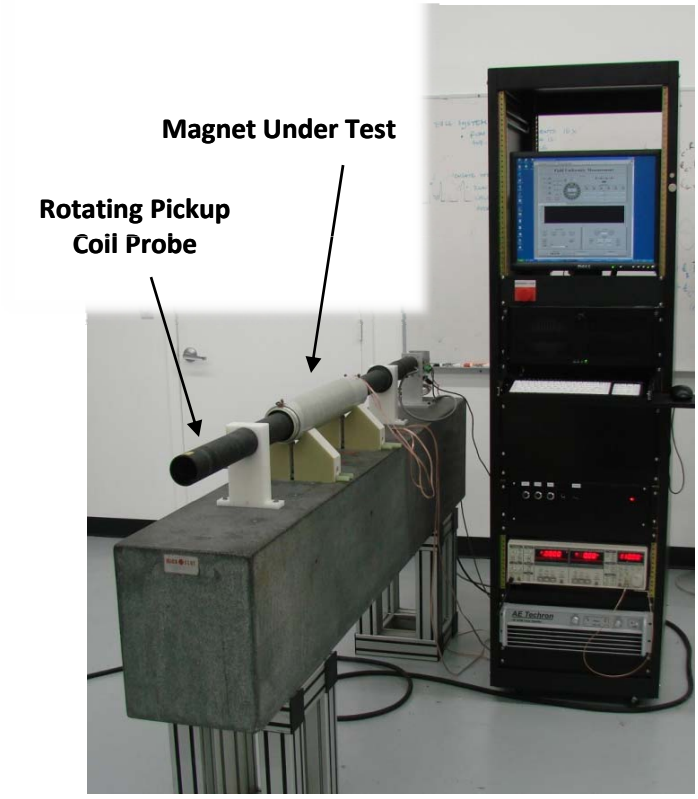
Field Uniformity Measurement Instrument

Many magnet applications demand transverse fields with high uniformity. These fields are conveniently characterized by 2-D multipole components. The ability to quickly and accurately measure higher order multipole components is necessary to understand, optimize and qualify such magnets.

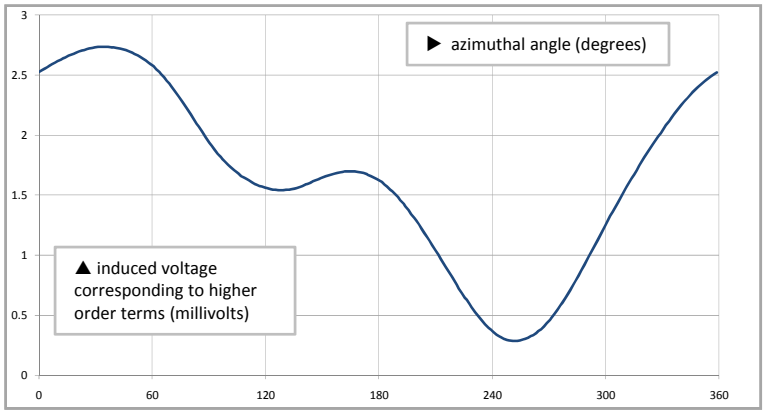
The AML **Field Uniformity Measurement Instrument** (FUMI), uses automatic compensation of the main field components in dipoles and quadrupoles to enable determination of field uniformity with a very high degree of resolution . FUMI is a computer controlled; modular instrument which can be configured for measurement within a specific magnet bore size.



FUMI consist of 4 main components:

1. **Magnet Fixturing**
2. **Pickup Coil Probe and Electronics**
3. **Probe Rotation System**
4. **System Control and Analysis Software**

Magnet fixturing and the pickup coil can be designed for customer-specific application dimensions.



Compensated measurement of higher order terms for a dipole magnet

The ultrasensitive pickup coil probe system contains specialized electronic modules such as a switch and compensation network used to select between various pickup coils within the probe, a lock-in amplifier used to achieve high signal to noise ratios and a power amplifier used to power the magnet to be tested.

Once the magnet to be tested is mechanically aligned in the measurement system, field readings are automatically performed and analyzed using a dedicated PC running the Field Uniformity Measurement software.

Specifications	**Value**	**Units**
Measurement Method	rotating probe	
Measurement Resolution	<10	PPM
Minimum Bore Diameter	20	mm
Minimum Magnet Length	75	mm

AML can provide:

- A Turnkey Field Uniformity Measurement Instrument
- Magnet Measurement Services
- Manufacturing of field compensation coils using our proprietary Double-Helix™ coil technology