SCHWARZBECK
Mess-Elektronik

MagTest System

System description

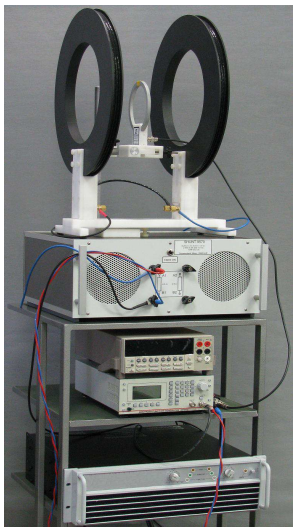
The MagTest System is a system to generate magnetic fields and to perform tests regarding the susceptibility against magnetic fields in accordance with MIL-STD-461E (RS101), MIL461F, ISO 11452-8, EN 55103-1/2, EN 61000-4-8, SAE J1113-22 and other military or civil standards. Most automotive manufacturers have derived their own standards, among them: Peugeot Citroen B217110, Renault 36 - 00 - 808, Ford ES-XW7T-1A278-AC and many others.

A further application is the calibration of magnetic loop antennas or sensors.

Main Components

The system consists of the following components:

- A function generator as signal source
- A power amplifier
- A shunt
- A field generating device like a radiating loop or a pair of Helmholtz Coils
- In some cases a monitoring loop
- An RMS-Voltmeter



Technical data

Frequency range:	10 Hz – 150 kHz
Magnetic field strength level:	More than 1000 A/m for 10 Hz < f < 1kHz in a single axis Helmholtz coil system
DuT size	Depending on selected Helmholtz coils and level and homogeneity requirements, typical 20x20x20 cm.
Function generators:	Toellner TOE 7761, HP 8165A, HP 3314A, R&S AFG, Agilent 33210A, Agilent 33220A are readily integrated in menus, all other models can easily be integrated by editing a text file. The function generator must be equipped with a GPIB interface.
Power Amplifier:	Modified audio amplifier 10 Hz -150 kHz, 2.5 kW
Voltmeter:	R&S URE3, R&S HMC 8012, Keithley 2000, HP 3478A, Datron 1061, Agilent 34401A are readily integrated in menus, all other models can easily be integrated by editing a text file. The voltmeter must be equipped with a GPIB interface and should be capable of true RMS measurements in the whole frequency range..
Power supply:	All devices are available for 230 Vac 50 Hz or for 100-110 V ac 60 Hz, the amplifier needs single phase power e.g. 230 V 16 A ac 50 Hz, it can be easily switched to Japanese or US power supply conditions.
Shunt resistor	The shunt resistor provides impedance matching for the amplifier and allows measuring a voltage drop to calculate the current. The shunt can be switched between three values: 0.25 Ohm, 0.5 Ohm and 1.0 Ohm by two bridges. The max. power dissipation is 1 kW.
Computer requirements	A Windows PC or Laptop with GPIB interface.

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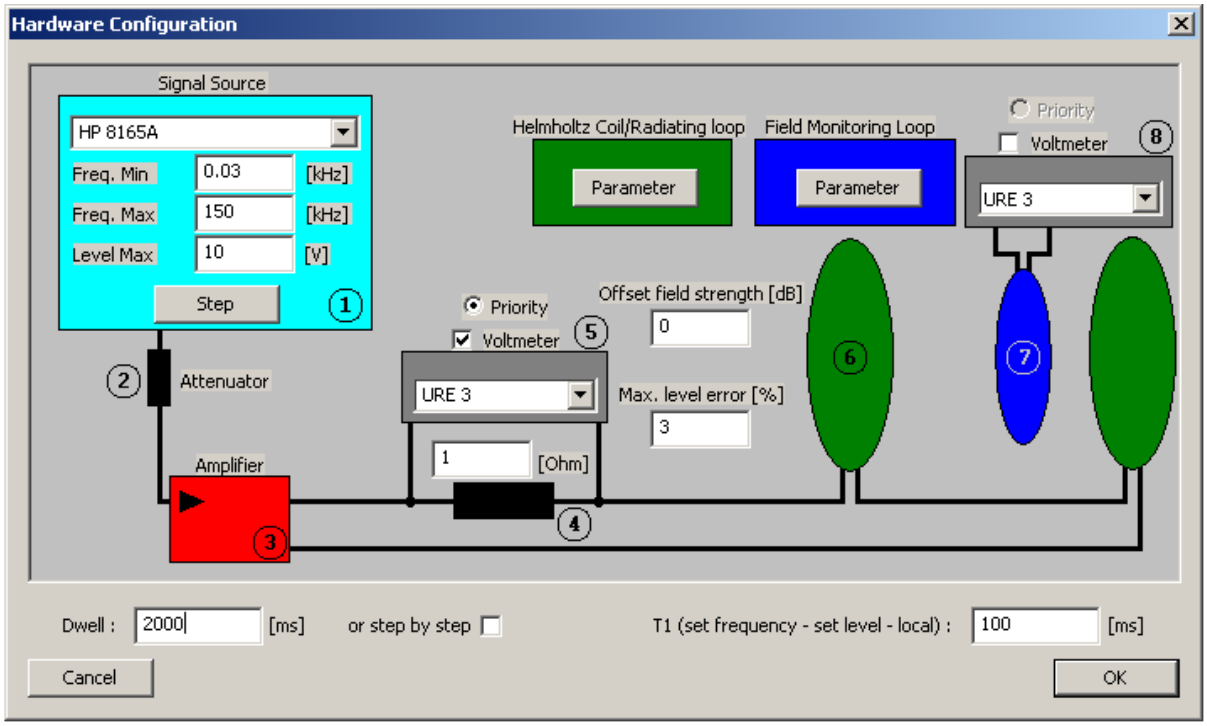
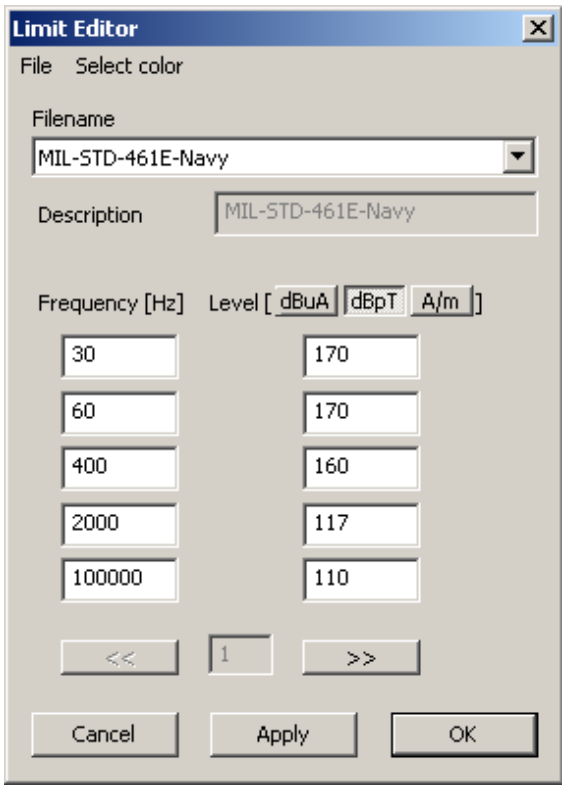
Hardware configuration

The software can easily be operated; the hardware can easily be selected from menus:

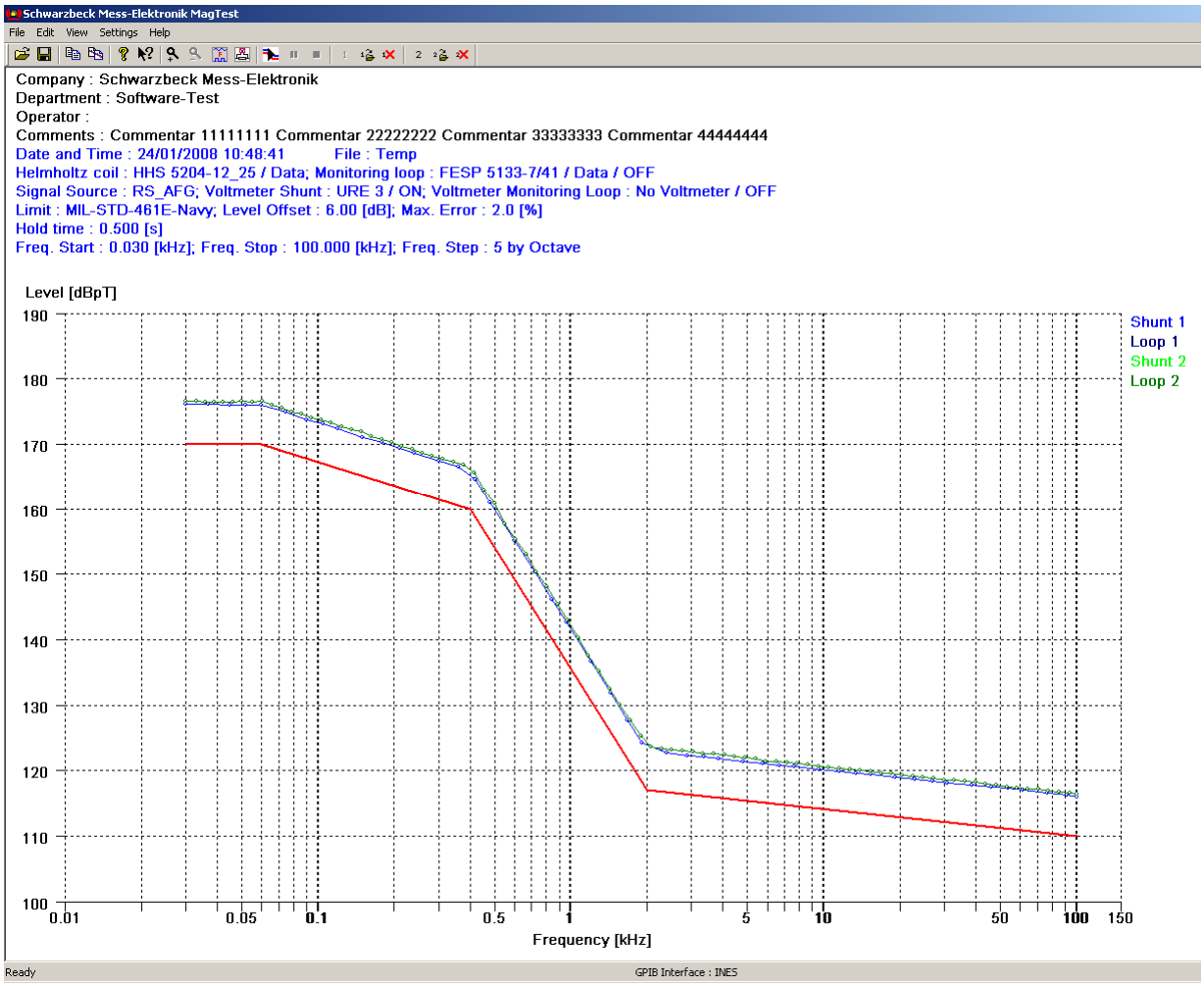


Limit Editor

Limits can easily be generated and edited:



Screenshot:



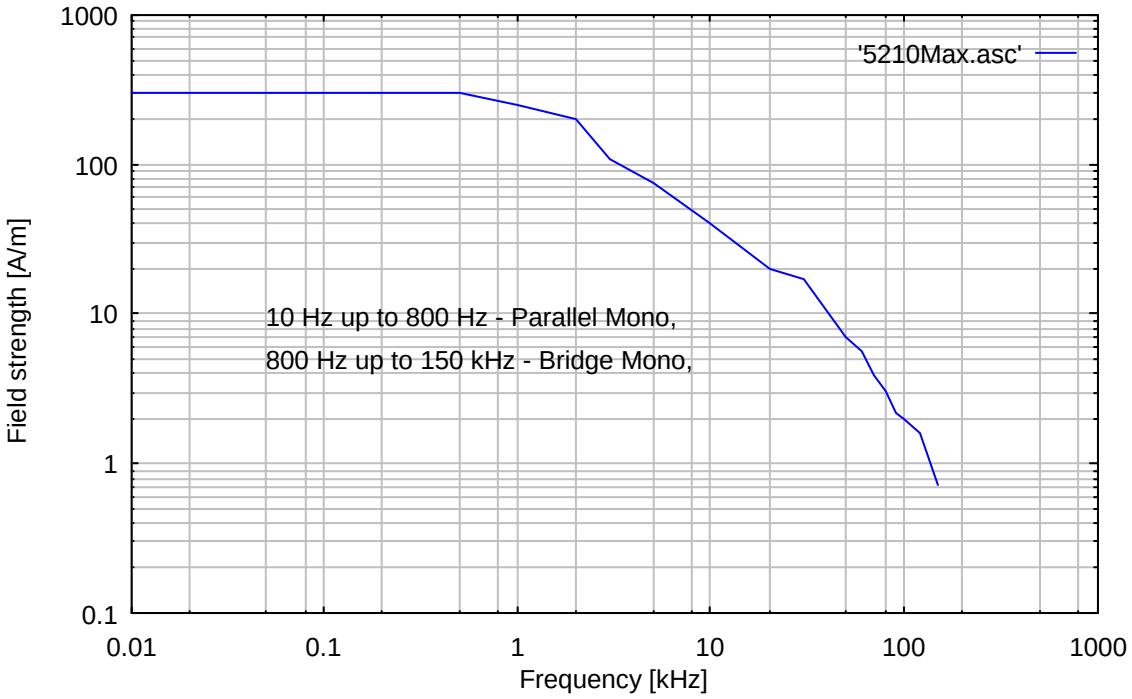
Interchangeability of components

All components can be completely purchased from us. We would combine the components of our own manufacture (Helmholtz coils, Shunt, Monitoring loop) with the best suiting third party components (voltmeter, function generator, power amplifier) and deliver a readily useable system. Training is available if wished.

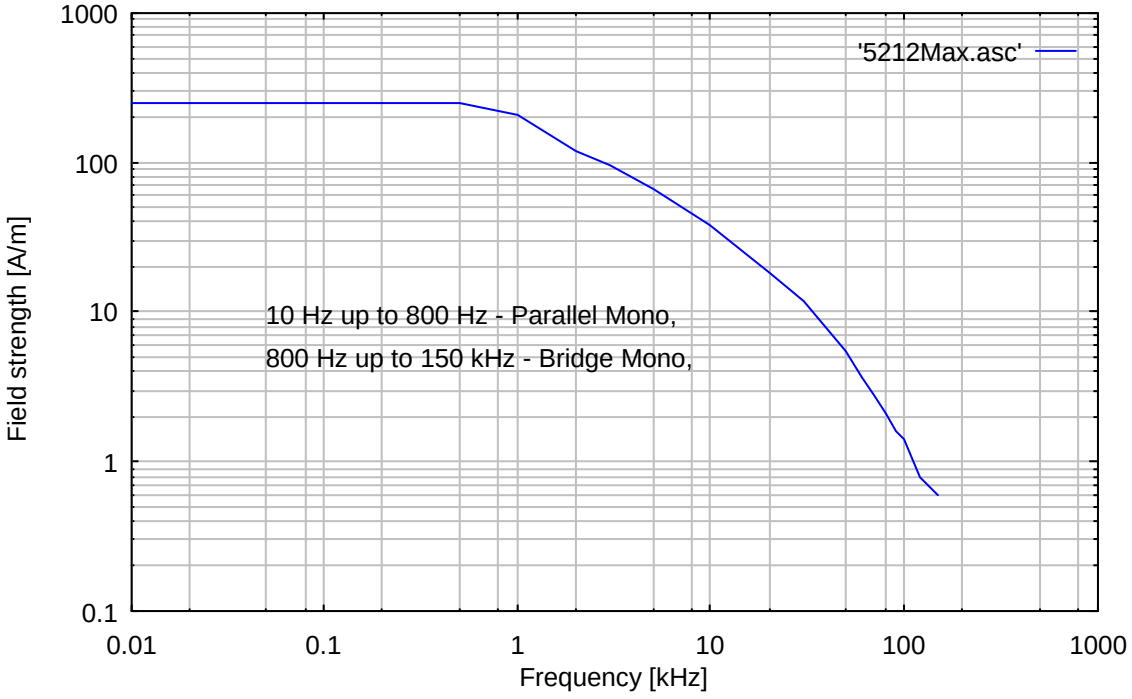
Alternatively your existing components could be integrated into the system easily. The usage of standard devices allows using them in a large variety of applications not only in the Magnetic field immunity system.

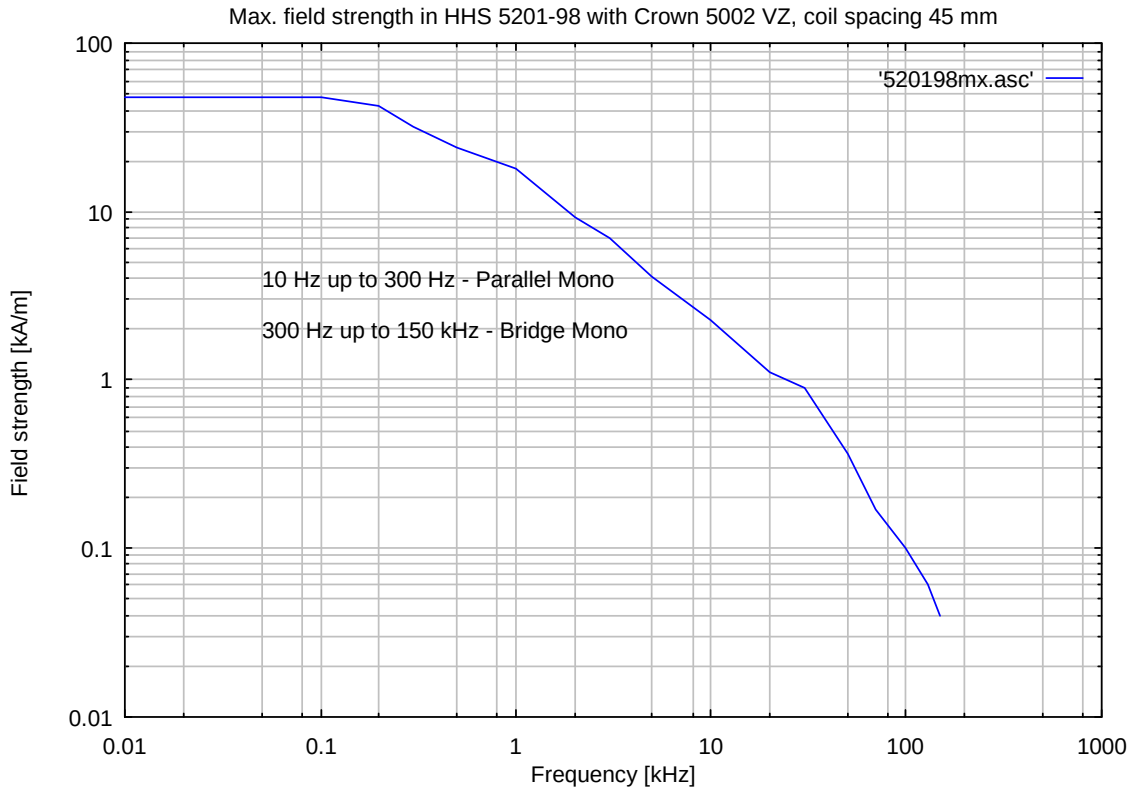
By using standard components the price of the complete system is surprisingly low. Contact us to find the best solution for your needs.

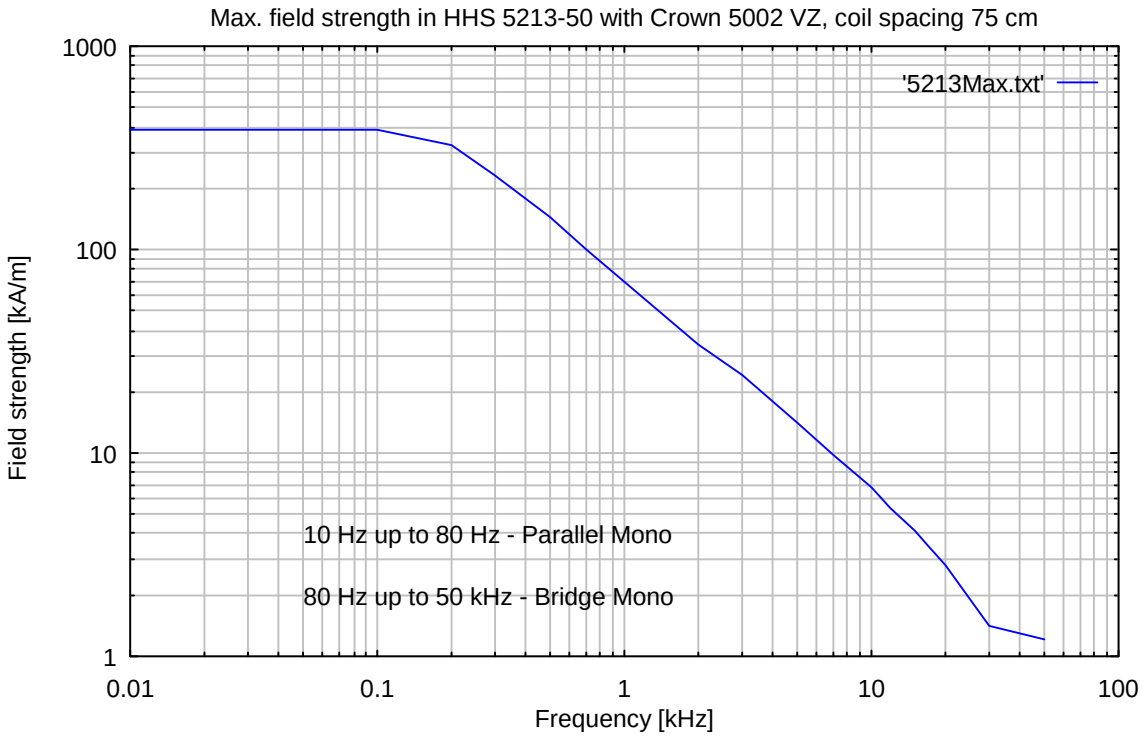
Max. field strength in HHS 5210 with Crown 5002 VZ, coil spacing 40 cm



Max. field strength in HHS 5212 with Crown 5002 VZ, coil spacing 48 cm







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