Quantum Design

Broadband Ferromagnetic Resonance

CryoFMR

2-8 GHz: DynaCool (D882A) / PPMS (P882A) / VersaLab (V882A)
2-18 GHz: DynaCool (D880A) / PPMS (P880A) / VersaLab (V880A)
2-40 GHz: DynaCool (D885A) / PPMS (P885A) / VersaLab (V885A)

The NanOsc Instruments AB line of broadband ferromagnetic resonance (FMR) spectrometers and coplanar waveguides (CPWs) offer a simple turn-key solution to the burgeoning field of magnetodynamics research. Broadband FMR spectroscopy allows for measurements continuously spanning several 10's of GHz. Measurements over a wide frequency range allow for significant improvements in accurately extracting a variety of material parameters not accessible by static measurement techniques.

Broadband FMR is particularly well-suited for studying magnetic thin films, which not only form the backbone of fundamental spintronics and magnonics research but are also constituents of current and future technologies focused on magnetic memories, sensors, logic, and microwave signal processing.

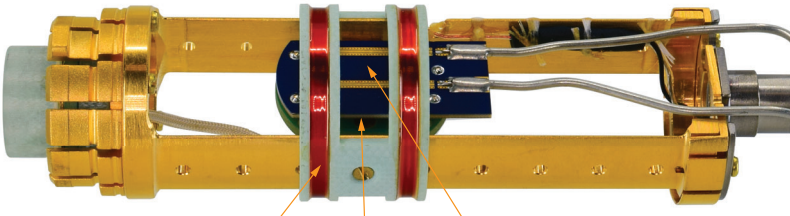
CryoFMR Specifications

Bandwidth	2-8,-18, -40 GHz
Operational Range	5* to 400 K; 0 to 16 T

*Minimum temperature dependent upon modulation amplitude and RF frequency.

Specifications are subject to change without notice.

CryoFMR Probe Insert



Helmholtz coils for field modulation | Temperature sensor | CPW for in-plane analysis**

Standalone CryoFMR probe can be purchased separately.
**out-of-plane CPW also included.

Key Features:

- Turn-key FMR spectrometer with easy to use software interface
- Broadband FMR using a coplanar waveguide
- Calculates the Effective magnetization (M_{eff}), anisotropy (K), gyromagnetic ratio (γ), damping (α), inhomogeneous broadening (ΔH_o)
- Enables the user to extract the exchange stiffness (A) and inverse spin Hall effect ISHE

Software makes FMR Easy:

The software user interface is divided into three tabs:

1. Setting up the measurement sweeps
2. Monitoring the running measurements
3. Post-processing and parameter extraction