

Agilent 28 Channel Thin Shims

Data Sheet



Introduction

A shim coil has been created which is approximately 50 % thinner than traditional designs and provides 28 gradient shims. This unique, state-of-the-art shim coil optimizes the available internal bore space of Oxford Instruments 500, 600, and 750 MHz magnets. It allows the Agilent most advanced 45 mm outer diameter NMR probes, such as the OneNMR Probe, to be used with these magnets and leads to its name, the Agilent 28 Channel Thin Shims.



Agilent Technologies

Excellent Control of Field Homogeneity

Traditional room temperature shims have shim wraps made from flexible printed circuits with copper on both sides. The new Agilent 28 Channel Thin Shims have been designed to include more shim gradients in a single shim wrap than earlier designs were able to accommodate. The result is a shim tube with excellent control of field homogeneity (Figures 1–3), maintaining the same functionality, reliability, and purity of room temperature shims as the current shim coils found in all Agilent 54 mm magnets.

Probe Compatibility

Thin Shims are compatible with 40 mm probes that were originally designed to operate with Oxford Instruments-designed magnets with a 51 mm bore size (using a spacer included), as well as the new 45 mm outer diameter Agilent probes. This allows for continued use of the current high-value probes already available with the system.

Integrated

The Agilent 28 Channel Thin Shims tube replaces the currently installed shim tube of the Oxford magnet and is installed from the base of the cryostat in the same manner as all other Agilent shim coils. Probe flange mounting holes are available for various generations of flange designs and different orientations. In addition to the shim driver connector, there is a thermocouple port for monitoring shim tube temperature. Purge (or cooling) gas flow is delivered through the self-locking connectors in the base of the shim tube assembly, and is controlled by the pneumatic front end attached to the NMR system.

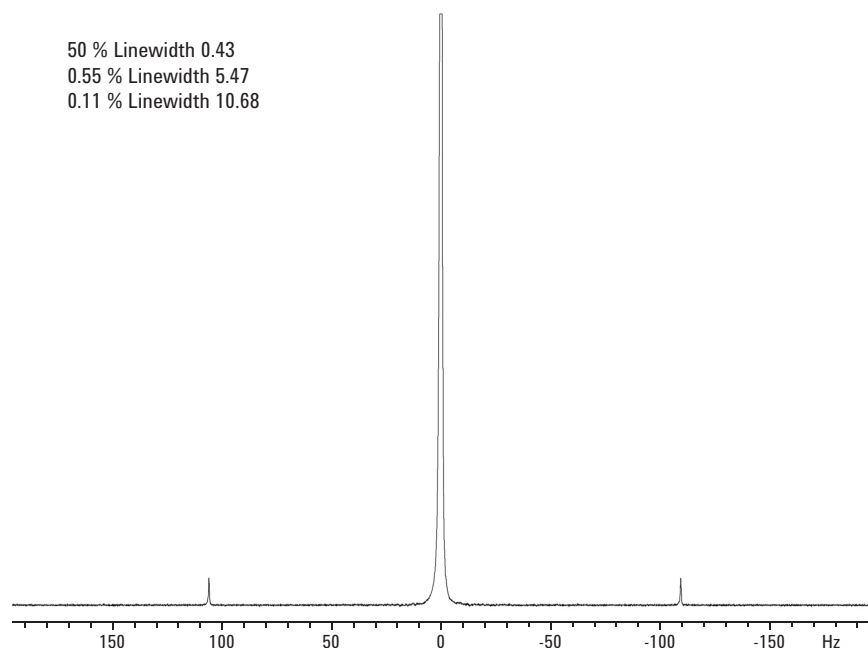


Figure 1. The nonspinning ^1H lineshape acquired using an Agilent 28 Channel Thin Shims on an Oxford 600 MHz actively shielded magnet with an automatable HCN triple resonance probe. *Courtesy San Diego State University Chemistry Department.*

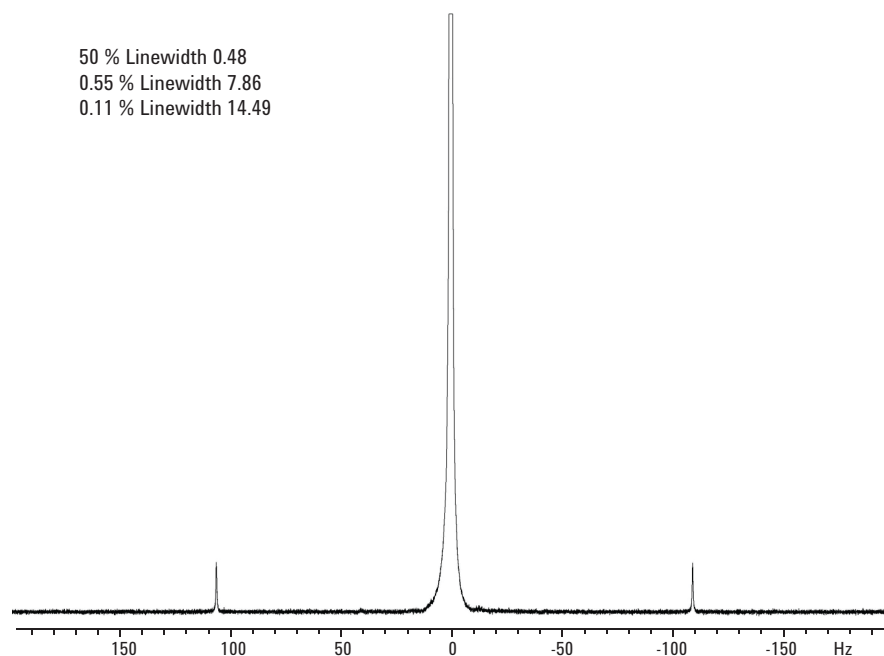


Figure 2. The nonspinning ^1H lineshape acquired using an Agilent 28 Channel Thin Shims on the same Oxford 600 MHz actively shielded magnet with a OneNMR probe. The nonspinning lineshape specification for a new Agilent 600 ASC magnet with an OneNMR probe is 0.8/7/14. *Courtesy San Diego State University Chemistry Department.*

User Friendly

The existing shim tube assembly is transparent to most users, a testament to its integration into the system and its excellent control of field homogeneity. ProShim and gradient shimming, as well as 3D gradient shimming, are fully compatible with the Agilent 28 Channel Thin Shims. The interaction between the user and the Agilent 28 Channel Thin Shims is through the various tools of the VnmrJ 3 interface.

Maintenance

There is no required maintenance for Thin Shims.

Adequate gas flow to the shim coils is needed to provide condensation and heating control, specifically when performing running variable temperature experiments at extreme high and low temperatures.

Installation

Agilent field mapping of the current magnet is required during installation.

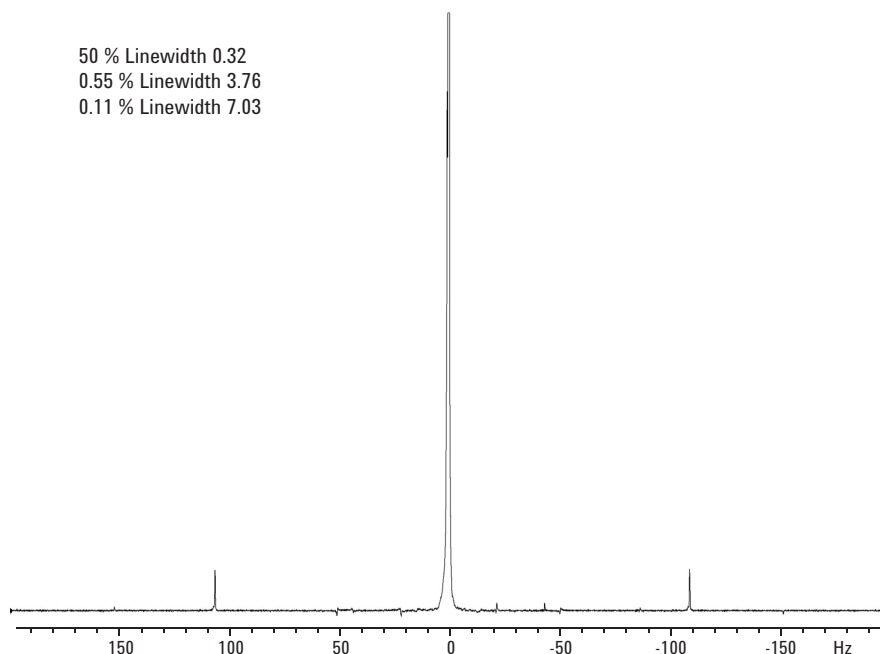


Figure 3. The spinning ^1H lineshape acquired using an Agilent 28 Channel Thin Shims on the same Oxford 600 MHz actively shielded magnet with a OneNMR probe. *Courtesy San Diego State University Chemistry Department.*

Minimum Requirements

| | |
|-------------------|---|
| NMR system | VnmrS, DD2, or newer NMR systems |
| Shim power supply | 1.5 Amp 28 channel shim power supply, p/n: 9100075100 |
| VnmrJ | VnmrJ 3.2 or newer |
| Host workstation | Currently released NMR workstation capable of running VnmrJ 3.2 |

Ordering Information

G8537A – Agilent 28 Channel Thin Shims*

| | |
|----------|---|
| Option 1 | For Oxford Instruments 500/600/51 AS and unshielded flat bottom |
| Option 2 | For Oxford Instruments 750/51 magnets compatible |
| Option 3 | For Oxford Instruments 600/51 unshielded round bottom magnets |

**Includes the magnet shim tube, thermocouple cable, and hardware required to attach the shim tube to the magnet. Also includes one 40 mm and one 38.5 mm probe spacer for compatibility with existing probes.*

Learn more

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