

# Agilent NMR System

## $^{13}\text{C}$ CPMAS with the Agilent NMR System

### Technical Overview

#### Introduction

##### Advantage statement

Even routine  $^{13}\text{C}$  CPMAS spectra improve when using the Agilent NMR System. The HMB test spectrum of Figure 1, obtained with VNMRS, beats the system sensitivity specification by 30% with S/N of  $> 140/1$  at a receiver gain of 20. This spectrum was obtained with a standard 22 mg HMB sample with a 400 MHz Agilent NMR system, using an Agilent 3.2 mm T3 HFX probe.

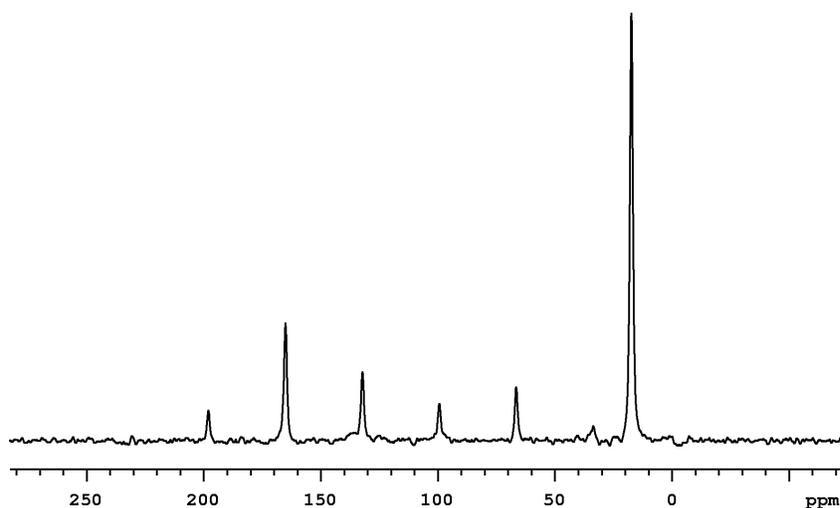


Figure 1. HMB test spectrum.



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## **The DirectDigital Receiver makes the difference**

The Agilent DirectDigital Receiver has excellent dynamic range and signal-to-noise at the 50 kHz spectral width, and relatively low gain setting (20 dB) used to obtain the above CPMAS data.

Agilent Digital Filters eliminate analog and digital filter distortions and allow the shortest dead times. We have found for Solids experiments with VNMRS that typical dead times for receiver turn-on drop by about  $\times 2$ .

Agilent Digital Filters are time corrected, assuring a true FID of good fidelity, where the first order phase correction is automatically zero, thus assuring spectra with flat baselines and FIDs that can be processed with a simple FT.

Greater accuracy, simpler data processing and better signal-to-noise come from doing things right in the detection pathway. Direct detection, 80 MHz sampling and patented Time-Corrected Digital Filters are all features unique to the Agilent NMR (and MRI) systems.

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