Journal of Magnetic Resonance 199 (2009) 115

Contents lists available at ScienceDirect

Journal of Magnetic Resonance

journal homepage: www.elsevier.com/locate/jmr

Corrigendum

Corrigendum to "Active compensation of rf-pulse transients" [J. Magn. Res. 197 (2009) 242–244]

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In our recent paper entitled "Active compensation of rf-pulse transients" (Journal of Magnetic Resonance 197 (2009) 242) [1], we proposed a new approach to compensate rf-pulse transients without reducing the Q factor of the probe tank circuit. The idea is based on the response theory of a linear system, and a formula was derived to calculate the voltage-profile of an rf-pulse shape, which is to be programmed in the NMR spectrometer, back from the intended rf-field profile. It has been shown that, by actively compensating the rf-pulse transients, the rf-field profile produced inside the NMR coil can be made as intended.

One possible application of active compensation is to receiver dead time reduction, which we argued should be quite useful for high-Q probes or low-frequency experiments. Regarding to dead time reduction, we cited some previous works on pulsed ESR experiments where the transient tail of a microwave pulse was shown to be effectively suppressed by applying, just after the main pulse, an additional phase-inverted pulse [2–4]. We have also become aware, after publication of Ref. [1], that the NMR version of transient-tail quenching had already been demonstrated before these ESR works by Hoult [5], where the transient effects of both the leading and trailing edges of the rf pulse were shown to be effectively suppressed. This is undoubtedly an important achievement deserving of citation, for which reason we have written this addendum.

Our new approach may be regarded as an extension to these prior works, since it can be used not only as another method for probe ringing suppression, but also as a general concept of accurate pulsing without Q-damping.

Acknowledgment

We are grateful to Dr. Curt Corum in University of Minnesota for letting us realize the important previous work on the NMR version of the quench pulse technique.

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DOI of original article: 10.1016/j.jmr.2008.12.012
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1090-7807/$ - see front matter
doi:10.1016/j.jmr.2009.04.003