Interactive B1+ Non-uniformity Compensation using TIP-COMP
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Introduction: In cardiac imaging, it is essential to consider the homogeneity of the active B1 field (B1+) [1]. We present a real-time implementation of Transmit In-Plane Compensation (TIP-COMP) RF pulse [2], which can compensate different B1+ variations.

Methods: Experiments were performed on a GE Signa EXCITE 3.0T system using a custom real-time imaging system [3]. To validate the accuracy of the proposed method, B1+ corrections were made in phantom. TIP-COMP excitation with 2-interleaved EPI over a 20cm FOV was used. Temporal resolution was 80.36ms with 20.08ms TR (2 excitations are required to measure B1+ profiles).

Results: The video shows interactive adjustment of TIP-COMP parameters creating different in-plane profiles as well as B1+ compensation using TIP-COMP. To produce B1+ inhomogeneity artificially, 12cm ball phantom was positioned halfway out at the end of the head coil. Measurement of the flip-angle profile was done in real-time using Saturated Double Angle Method (SDAM) [4].

Discussion: For in-vivo validation, cardiac gated single-shot spiral readout can be used to measure B1+ profiles in real-time. Fat saturation also required to suppress fat signal.

[2] Sung K., et al., Proc 13\textsuperscript{th} ISMRM p.18