Receiver Bandwidth

What is Receiver Bandwidth?

Receiver bandwidth, often shortened to just 'bandwidth' and not to be confused with transmit bandwidth, is a selectable parameter that controls the range of frequencies to be sampled for an MR image. Bandwidth is inseparable from two other parameters: Field of View (FOV) and Frequency Matrix. Indirectly, the bandwidth has implications in a number of things: chemical shift artifact, image contrast, geometric distortion, echo spacing, SAR, susceptibility artifact, motion artifact, sampling rate, and frequency encoding gradient amplitude. This complex list of effects can make bandwidth difficult to understand in isolation, especially as this parameter is interacted with differently across different vendors. For the following examples, bandwidth will be discussed in GE nomenclature; as the total range of frequencies across the entire image, disregarding FOV and Frequency Encoding.

Bandwidth and FOV

For this example,