

**Documentation Title:** Phantom Results and Data

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Three phantoms were made for this project.

First Prototype: Realistic Texture (Expected)

The first prototype was successfully achieved. It contained the vagina, rectum, and uterus. The surrounding fat was softer, while the wall of the vagina and rectum were less soft.

Second Prototype: Ultrasound Compatible (Maximum)

The second prototype was successfully achieved. It contained the vagina, rectum, uterus, and a tumor mass. The gradation in microbead concentration also reflected as contrast under abdominal ultrasound. When viewed under ultrasound, the compartments were distinguishable. A needle was also visible.

Third Prototype: Anatomical Accuracy (Unexpected)

The third prototype was successfully achieved. It contained the bladder, vagina, rectum, uterus, and a tumor mass. It was also anatomically accurate due to the use of a patient MRI scan for segmentation of the volumes. Gradation of microbead density was also introduced to the manufacturing process.. When viewed under abdominal and transrectal ultrasound, the anatomy was comparable with that of a real person's. When evaluated by an attending physician, the phantom was described as being realistic to touch as well as to ultrasound imaging on a clinically used ultrasound machine.

For *more details* on the exact results and data, please see the document, "Final Report."



