At the department of Clinical Physiology and women’s clinic they have invested in a new ultrasound equipment consisting of a 64 phased array scanner with a frequency range from 2 MHz to 10 MHz. The old scanner could use a 1,5D 16 elements phased array but it also included a linear array of 128 elements. A feature for the new equipment was the possibility to apodization, an advanced beam steering, but also the possibility to render and display 3D images. The application field is adult heart and foetus investigations. Before taking it into clinical practice, a delivery acceptance and inspection on the new equipment has to be performed. The problem was that the department lacked a really good test phantom. You were actually in for a summer job when it arrived and your first assignment was to build a phantom and calibrate the equipment. In a cupboard you found a small water tank, some flat PMMA (Polymethyl methacrylate, 5 mm thick) material and spheres of different radius. You also found some small metal wires and syrup. What are the primary things that you can test and how are they related to the scanner just bought? Since the scanner is new for both staff and the clinical engineering department there is a need to compare the old and the new equipment in order to educate both. With your fresh background from the BME program you are asked to do this and it has to be done this week. Therefore you start up making a protocol of how the scanner specifications can be measured with your phantom but also why it is that important. You also begin thinking of how the education of the staff and engineers should look like and what it should contain.