

**QIBA Ultrasound Shear Wave Speed (SWS)
Phantom-System Measurement Testing**
Friday, October 19, 2012; 11 AM CT
Draft Call Summary (*edits incorporated – BG/TJH*)

In attendance

Brian Garra, MD (Co-Chair)

Timothy J. Hall, PhD (Co-Chair)

Paul L. Carson, PhD

David Cosgrove, MD

Steven E. Fick, PhD

Ted Lynch, PhD

Andrew Milkowski, MS

Nicolas Rognin, MSc, PhD

Cedric Schmitt, PhD

Keith Wear, PhD

Hua Xie, PhD

RSNA

Joe Koudelik

Julie Lisiecki

Approval of last call summary, 9/24/2012 – pending edits by Dr. Hall

Discussion of Suggested Phantom Groundwork

- On the last technical committee call, Mr. Milkowski proposed that the manufacturers take the first step in working with simple phantoms to test cross-system reproducibility.
- Planning questions:
 - Which phantom(s) should we use?
 - What basis would be used for making measurements equivalent across systems?
 - Would using 2 sets of elastic phantoms be possible?

Proposed Phantom criteria:

- Begin data gathering for visco-elastic phantoms while simultaneously measuring elastic phantoms.
- Remove uncertainty of experimental methods with loss-less phantoms.
- The next study will involve two sets of phantoms with significant loss and equal phase velocities: 2 lossy, 2 loss-less
- Use a range of elasticity that is 'stiff enough' to be geometrically stable yet 'soft enough' to simulate measurement of tissue – from purely elastic phantom
 - Stiffer than 5 kPa Young's Modulus – about 10 kPa would be suitable
 - Dr. Madsen willing to manufacture loss-less phantoms and to make a set of samples to establish consensus
 - Ted Lynch (CIRS) also stated willingness to manufacture the lossless phantoms
 - Preference will be given to regular call participants
- Data to be provided in lower frequency (10-300Hz; Dr. Hall) and broader frequency (20-1000Hz; Dr. Schmitt)
 - Criteria for success would be:
 - Compliance with Kramers-Kronig
 - Results in agreement
- Sample test cylinders for group testing proposed for protocol development (Dr. Lynch)
- Must be stable enough to ship between multiple labs (or manufacture several identical phantoms/ each lab)
- Large enough diameter to avoid significant boundary condition problems
- Suggested phantom size of 10 cm diameter x 10 cm height with a sample batch of ten to begin experiment
- Dr. Lynch offered to provide an initial 10 test phantoms/cylinders
- Siemens, Supersonic Imagine (SSI), and Fibroscan would each take 3 measurements of each cylinder
- Anyone with a commercially available machine could be included in the study, with attention to:
- Comments from System Dependencies group and Technical Committee are requested and welcomed
- Small study (less than 20 participants) for initial effort proposed

Next Steps:

- For the next t-con, consider questions that may need to be answered by phantom manufacturers.
- Consider construction / geometry of phantom and ranges of moduli:
 - Flat versus curved scanning surfaces
 - Ease of making measurements
 - Shelf-stable material
 - How these tests should be conducted
- A separate call may be needed to work out the study design specifics and protocol.

Next call for QIBA US SWS Phantom-System Msmt Testing Subcommittee: *Monday, November 5, 2012, 1 pm CT.*

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