

**QIBA Ultrasound Shear Wave Speed (SWS):
System Dependencies and Phantom-System Measurement Testing Task Force Group**

Friday, November 7, 2014; 11 AM CT

Notes provided by Dr. Wear

In attendance

Keith Wear, PhD (Co-Chair)

S. Kaisar Alam, PhD
Michael André, PhD
Paul Carson, PhD
Shigao Chen, PhD
David Cosgrove, MD

Steven Fick, PhD
Timothy J. Hall, PhD
Ted Lynch, PhD
Mike MacDonald, PhD
Yasuo Miyajima, MS

Kathy Nightingale, PhD
Nancy Obuchowski, PhD
Matthew Urban, PhD
Michael Wang, PhD, MASc
Hua Xie, PhD

RSNA

Joe Koudelik
Julie Lisiecki

Moderator: Keith Wear, PhD

1. Review and approval of Call Summary of previous meeting. Approved.
2. Update on Phase II phantom Set # 1SWS Measurements at Philips (Shamdasani) – Out of the office until Nov. 9.
3. Update on Phase II phantom Set #1 SWS Measurements at Siemens (Milkowski). Not available for teleconference.
4. Phase II phantom Set #1 are currently at Toshiba in Tustin, California. Yasuo Miyajima reported that phantoms look OK. The bubble issue seems to be OK. He had some concern about surface roughness. There was a strange color. Acoustic coupling seemed to be OK. He will send phantoms to Mayo soon. Photographs (Oct. 24) revealed that A1 had a small dent at center, B3 had snail trail patterns on surface, and C1 had scratches and a very small air bubble near the surface. There is a concern that chemical changes might be affecting sound speed.
5. Discussion of Phase II Set #2 phantom conditions when received at Duke University. Preliminary phase velocity and dispersion measurements. (Nightingale). Duke measured $c(200\text{ Hz})$ and dc/df (Rouze *et al. IEEE UFFC* 2014). Comparing with a scatter plot of Duke measurements of $c(200\text{ Hz})$ and dc/df in 107 patients, values for both Set #1 and Set #2 fall in the proper range for humans. There are some slight differences between Set #1 and Set #2, but either set does a good job of mimicking human liver.
6. Discussion of Phase II Set #2 phantom conditions when received at Philips, Briarcliff Manor, New York. Preliminary phase velocity and dispersion measurements if available (Xie). Hua Xie found no bubbles. She performed measurements using a Philips iU22, curvilinear probe C5-1, and Philips ElastPQ software. The Voigt model was used to estimate shear modulus and shear viscosity. Set #2 phantoms were a little stiffer than Set #1. Both Set #1 and Set #2 were consistent with the ranges of shear modulus and shear viscosity with the patient database acquired by Philips/Mayo, which resulted in a publication in *Radiology*. Set #2 was a little better than Set #1. These results were blind to Duke results.
7. Discussion of future measurements: Should labs measure both Phase II phantom sets (Set #1 and Set #2) or just Set #2? There was a comment that Set #2 appears to be in better condition than Set #1. Ted Lynch believes that Set #2 has a more repeatable recipe. **Toshiba will send Set #1 to Mayo. Then Mayo will measure—with GE (although GE software might not be final version) and SSI? and MRE—and then send Set #1 to Duke for another evaluation.** If Duke does not see significant change in parameter values, then Duke can send Set #1 to University of Wisconsin to return to the schedule (see below). Set #2 is currently at Philips, NY, and will be sent to Philips (Washington). **Ground transportation was recommended for Set #1 because of the potential bubble problem. Ted Lynch believes that it would be safe to ship Set #2 by air transportation. Reminder to participating labs: please use the proper saline solution for the coupling fluid!**
8. Since the Phase II phantoms are more lossy than the Phase I phantoms, they might not have the reflection problems that Dick Ehman found when using MRE on the Phase I phantoms. However, the Phase II phantoms are smaller, and there might be a problem with MRE measurements because of incompatibility with the MRE vibrator.

9. Phase II Measurement Schedule	Set #1	Set #2
a. Duke	X	X
b. Philips (New York)	X	X
c. Philips (Washington)	X	
d. Siemens	X	
e. Toshiba	X	

- f. Mayo Clinic
- g. Duke (Set #1 only)
- h. University of Wisconsin
- i. Southwoods Imaging Center
- j. Massachusetts General Hospital
- k. FDA/VA
- l. Duke

November / December call schedule, Fridays at 11 am CT:

- **November 14, 2014:** Biomarker Committee – *Pending Moderator Availability*
- **November 21, 2014:** Clinical TFG – Dr. Samir
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- **November 28, 2014:** No call (Day after Thanksgiving)
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RSNA 2014 begins – November 30th for attendees

- **December 5, 2014:** No call (RSNA 2014)
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- **December 12, 2014:** **Co-Chairs' Choice (TBD):** {System Dependencies/ Phantom TFG, Biomarker Ctte, **OR** Clinical TFG}
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- **December 19, 2014:** No call (RSNA organization – wide meeting)
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RSNA Offices closed – Winter Break – December 24 – January 1st

RSNA 2014

QIBA Biomarker Committees - Working Meeting

- Wednesday, December 3rd | 2:30pm – 5:00pm | Plenary Room: **E253AB** | US Breakout Room: **E262**
- Please let us know whether you plan to attend: <http://doodle.com/mk7qecxint6vbwf5>.

QIBA Poster Meet-the-Expert (MTE) Sessions – volunteers needed

- **Location:** McCormick Place, Chicago - Learning Center (**Hall D**) – QIBA Kiosk
- Please provide your availability to volunteer for the QIBA Poster Meet-the-Expert (MTE) sessions.
- **Doodle Poll URL:** Ultrasound SWS Biomarker Committee: <http://doodle.com/uph4zgvfbsi4ynd7>

[Conferences for Ultrasound](#) on QIBA Wiki have been updated (as known) for 2014 – 2015. Updates welcome.