



**PULSE-ECHO QUANTITATIVE ULTRASOUND
BIOMARKER COMMITTEE**
Agenda for Friday, November 5, 2021
11:00am – 12:00pm

Attendees: Ivan Miguel Rosado-Mendez (Co-Chair), Anthony Samir (Co-Chair), Michael Wang, (Co-Chair), Stephane Audiere, Cristel Baiu, Guy Cloutier, Aaron Engel, Todd Erpelding, David Fetzer, Jing Gao, Timothy Hall, Aiguo Han, Viksit Kumar, Stephen McAleavey, Kibo Nam, Gary Ng, Arinc Ozturk, John Pellerito, Theodore Pierce, Stephen Rosenzweig, Jonathan Rubin, Paul Sidhu, Timothy Stiles, Theresa Tuthill, Keith Wear, Nancy Obuchowski

AIUM Staff: Kelly Phillips

TOPIC	COMMENTS	ACTION ITEMS
Introduction	Welcome (MW, 5 min)	
Funding	Update on funding for phantom study (MW, 2 min)	
Position Paper	Status of position paper (IRM, 3 min)	
Work Groups	Work Group Progress Reports a. Attenuation (10 min) b. Sound Speed (10 min) c. Backscatter (10 min) d. Phantom (10 min) – Finalized phantom specs	

QIBA Meeting	In-person QIBA working meeting at RSNA (MW, 5 min)	
Closing	Closing remarks/discussion (MW, 5 min)	
NEXT CALL	Date: December 3, 2021 Time: 11:00am, EST	

MW – confirmation of receipt of donation from half of the manufacturers in the study

IRM – position paper was submitted yesterday; co-authors should have received an email asking for a statement of their contribution and a copyright agreement

Work Group Updates –

VK – Attenuation WG

- How to report attenuation coefficient for round robin study and as a good practice?
- IEC suggests specific attenuation coefficient: at a specified frequency, the attenuation coefficient divided by the frequency
- Committee narrowed it down to:
 - Db cm⁻¹ MHZ⁻¹ at specified frequency
 - Db cm⁻¹ MHZ⁻¹ at center frequency
 - As reported by vendor
- Action Items
 - Survey to vendors asking for center frequency and bandwidth used in their devices
 - Consensus on reporting attenuation value

IRM will share results from preliminary phantom study regarding depths

SR – Sound Speed WG

- Manuscript Status
 - Outline completed and sections assigned to group members
 - 9/12 sections completed: reference formatting in progress
 - Aiming to complete initial draft and 1st round of edits by next SoS WG meeting
- Measurement Protocol/Spreadsheet
 - Current vendors
 - E-scopics – ES1 – Convex ES1
 - Hologic SuperSonic Imagine – MACH-C6-1X
 - Mindray North America
 - Site 1 – ZS3: C6 – (1 or 2)
 - Site 2 – RE7: Probe – flexible
 - Site 3 – pending
 - ROI Size
 - Curvilinear, 10 degrees, 4 cm height
 - Request testing of 3 ROI sizes by manufacturers based on clinical scanning desire of shorter, wider ROI

TT – Backscatter WG

- Manuscript
 - Have a first draft (led by Keith Wear)
 - Keith sent note to Editor of Radiology; they are interested
 - Submitted an outline which contains the basic science of backscatter, the reference phantom method for measuring backscatter, methods for compensation for attenuation, literature survey, backscatter coefficient values for normal and fatty liver and discussion of repeatability and reproducibility and potential sources of variability
 - Are considering a second review paper, more technical, for a journal like IEEE/UFFC
- Discussion with Ivan on pairing academic sites with vendor
 - Siemens only vendor with BSC, but need research agreement
 - Institutions with collaboration agreement need to check specifics
 - Some may need amendments
 - For other vendors willing to provide RF, group(s) needed to compute BSC

- Roberto, Guy and Aiguo volunteered their groups to compute in Phantom study
 - General flowchart for BSC computation to be provided
- Attenuation compensation
 - Anil Chauhan analyzing (fat/muscle annotation) from images provided by Dr. Barr

TS – Phantom WG

- Discussion about remaining potential issues: most of these are resolved as far as PWG and leadership of PEQUS
 - Sent a note to PEQUS leadership for current status of these issues.
 - Ready to proceed with specifications as discussed in September general meeting
 - Specifications were uploaded to Basecamp this morning
- Presented outline of manuscript on PWG efforts. Goal of working through a solid first draft by end of this month.
- Ongoing Efforts
 - Measurements of transmission coefficient of acoustic windows
 - Manuscripts on PWG efforts
 - Studies about side wall reflections; checking prototype phantoms for potential effects

MW – what are next steps for phantom manufacturing?

TS – specs haven't changed, beads have been sieved and should be ready to be sent to CIRS and Sun Nuclear

TH – will all phantoms have the same scanning window membranes and will test cylinders also have the same membranes?

TS – Idea is that each phantom manufacturer would use their own typical acoustic membrane material; hockey pucks/water bath samples – membranes haven't been discussed

TH- it will reduce uncertainty in the overall study if all of the membranes are the same; bonding to side walls

MW –

- In –person meeting at RSNA next month, no agenda yet
 - TH – No written agenda yet for the general meeting; will be talking about progress over the last year and plans for 2022; work about the metrology group that has been looking at multi-parameter biomarkers; statistics of confidence intervals for different kinds of cases of how you would combine and output with particular attention to AI

- IRM – can bring some prototypes to do some preliminary testing (TH suggests doing this before the exhibit hall opens and can use the machines on display)

MW – should start working on a list of protocols to provide each site – a checklist of what should be performed at each site – handling, packaging, shipping instructions – Phantom WG

- each biomarker group - measurement protocol including environmental conditions, equipment needed, details on what to measure

- manufacturers - operating instructions on how to measure with each system

AS – It would make sense for the group at MGH to provide the imaging manual for the study (have experience with this)