

QIBA DCE-MRI Subcommittee Update Call  
Wednesday, August 4, 2010  
11 am CDT

Call Summary

In attendance	Hendrik Laue, PhD
Gudrun Zahlmann, PhD (co-chair)	Jiachao Liang, PhD
Edward F. Jackson, PhD (co-chair)	Colin G. Miller, PhD
Edward Ashton, PhD	David E. Purdy, PhD
Orest B. Boyko, MD	Daniel C. Sullivan, MD
Andrew Buckler, MS	
Michael H. Buonocore, MD, PhD	RSNA
Alexander Guimaraes, MD, PhD	Fiona Miller
Marko Ivancevic, PhD	Joe Koudelik
Michael Knopp, MD, PhD	

**Phantom Update (Dr Jackson)**

- Data acquisition from the IRAT/QIBA phantom (version 1) continues
- Second round of data from U Chicago to be sent to Dr Ashton for preliminary analysis and then sent to Dr Jackson for final analysis and incorporation with the results from MDACC and U Penn
- U Chicago returned phantom to MDACC with damage caused by shipping; after repair, to be shipped to UC Davis (Dr Buonocore) for completion of all original data acquisition
- Duke in possession of second MRI phantom; awaiting modified protocol from U Chicago

**QIBA Phantom Prototype (version 3) Update**

- Overall reduction in size compared to Phantom Prototype (version 2)
  - Outer diameter ring reduced from 42 to 36 cm
  - Inner diameter ring reduced from 36 to 28.5 cm
- Data acquisition done with smaller phantom and compared to larger Phantom Prototype 2 data
- IR data agreed well
- “Tissue R1” mean data agreed well; “VIF R1” mean data diverged from IR-based data and theoretical values for the higher R1 values
- VIF results were computed without signal intensity corrections
- Ratio map correction validation needs to be implemented
- Dr Buonocore to scan both QIBA DCE-MRI phantoms, version 1 (original) and version 3 (smaller prototype) at UC Davis
- Updated QIBA phantom study protocol needed
- Dr Jackson to ship Prototype v3 phantom to U Penn for testing
- Philips acquisitions still needed at either U Chicago or MGH; Dr Guimaraes offered GE and Siemens acquisition at MGH; follow-up with Dr Sorensen

**ISMRM (NIST)/QIBA Phantom Comparisons**

- Goals for both phantoms vary so direct comparisons between the two may not be possible
- ISMRM phantom designed for system evaluations; phantom component traceability to NIST standards and costly
- QIBA Phantom to be robust and cost-effective for multi-site distribution; more practical for ease-of-use
  - Possible use by ACRIN for in site qualification processes
  - Centers for Quantitative Imaging Excellence (CQIE) sites may utilize
- Dr Jackson to follow-up with The Phantom Laboratory (Joshua Levy) to discuss fabrication details and projected costs for new design
- Commercially-available, easily-manufactured phantom needed
- New phantom (v3) to help finalization of proven qualification process

**Profile Activities Update**

- Cost to vendors must be considered if QIBA decides to follow an ACRIN-like qualification process
- QIBA meetings and committee calls considered by some as a “notion of a future state” where vendors want QIBA compliance; a means by which the field moves forward by customers receiving improved data reproducibility

- Stakeholder business case/value propositions needed
  - Manufacturers might consider development of separate quantitative MRI system; systems designed specifically for quantitative performance
- Strong focus on tests that lead to results to be used by service personnel; tests outside this area may be deemed by vendors as not useful, e.g. does not relate to serviceable issues
- Need to identify types of phantoms and metrics to propose to vendors; need to convince vendor management that pay-off is affected
- Additional feedback on features of new phantom needed from committee members
- Drs Purdy (Siemens) and Ivancevic (Philips) to provide feedback whether MRI Phantom Prototype V3 “compliance” would be considered by vendors
- Dr Knopp to forward Profile section content to Dr Gupta for incorporation

**Next steps:**

- Dr Jackson to follow-up with The Phantom Laboratory (Joshua Levy) to discuss costs and fabrication details for new design
- Updated QIBA phantom study protocol needed
- Dr Guimaraes offered GE and Siemens acquisition at MGH; follow-up with Dr Sorensen and group feedback for next update call on Aug
- Dr Purdy (Siemens) and Ivancevic (Philips) to provide feedback whether MRI Phantom Prototype V3 “compliance” would be considered by vendors
- Dr Knopp to forward Profile content to Dr Gupta for incorporation
- Next call scheduled for Wednesday, Sept 1, 2010 at 11 am CDT