


AAPM
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Med Physics 2.0 Ultrasound - Perspectives

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1. Planning for medical physics in medical ultrasound

1. Relative low cost and high image/quantification/TX quality just beginning
 1. Cost is falling now
 2. Soon 2D scanheads containing most beamforming, wireless to tablet or smart phone/glasses
2. Ultrasound will become ubiquitous in personal use as well as become an even larger part of medical use in many medical disciplines.
 1. personal tricorders for Dx, monitoring and therapies
 2. Localized drug delivery and activation
 3. Resolving of deep, even transcranial, 200 micron vessels
3. Medical physicists' opportunities

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Physics successes and hopes in QC, performance evaluation and education

1. Successes in US system QC in imaging facilities
 1. Most important have been detection of design and company servicing failures.
 2. Need regional test facilities
2. Hopes
 1. Simplified and better QC will make its performance very cost effective
 2. Can be done even on 2D arrays, with necessary support of system suppliers
3. Education – More complex than x-ray and CT
4. QC and Perf. Eval., not all of medical physics – also development of new systems, applications, quantification

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QC and Perf Eval

State of the art performance evaluation:

IEC 61391, *Ultrasonics* –

1. 61391-1 2006 *Pulse-echo scanners – Part 1: Techniques for calibrating spatial measurement systems and measurement of system point spread function response*
2. 61391-2 2009 *Pulse-echo scanners – Part 2: Measurement of maximum depth of penetration and local dynamic range*
3. 61391-3 2017 CD for TS, *Pulse-echo scanners – Part 3: Low-echo sphere phantoms and methods for performance testing of gray-scale medical ultrasound scanners applicable to a broad range of transducer types*

QC IEC 62736: Committee Draft, *Ultrasonics – Pulse-Echo Scanners – Quality Control of Diagnostic Medical Ultrasound Systems ...*

All could use simplified, unified documents.

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