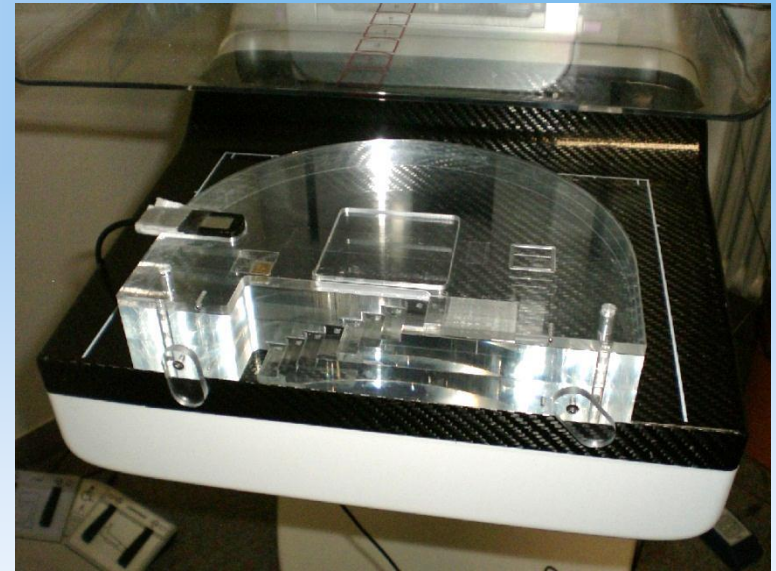


A new method for QA/QC of mammo and tomo devices

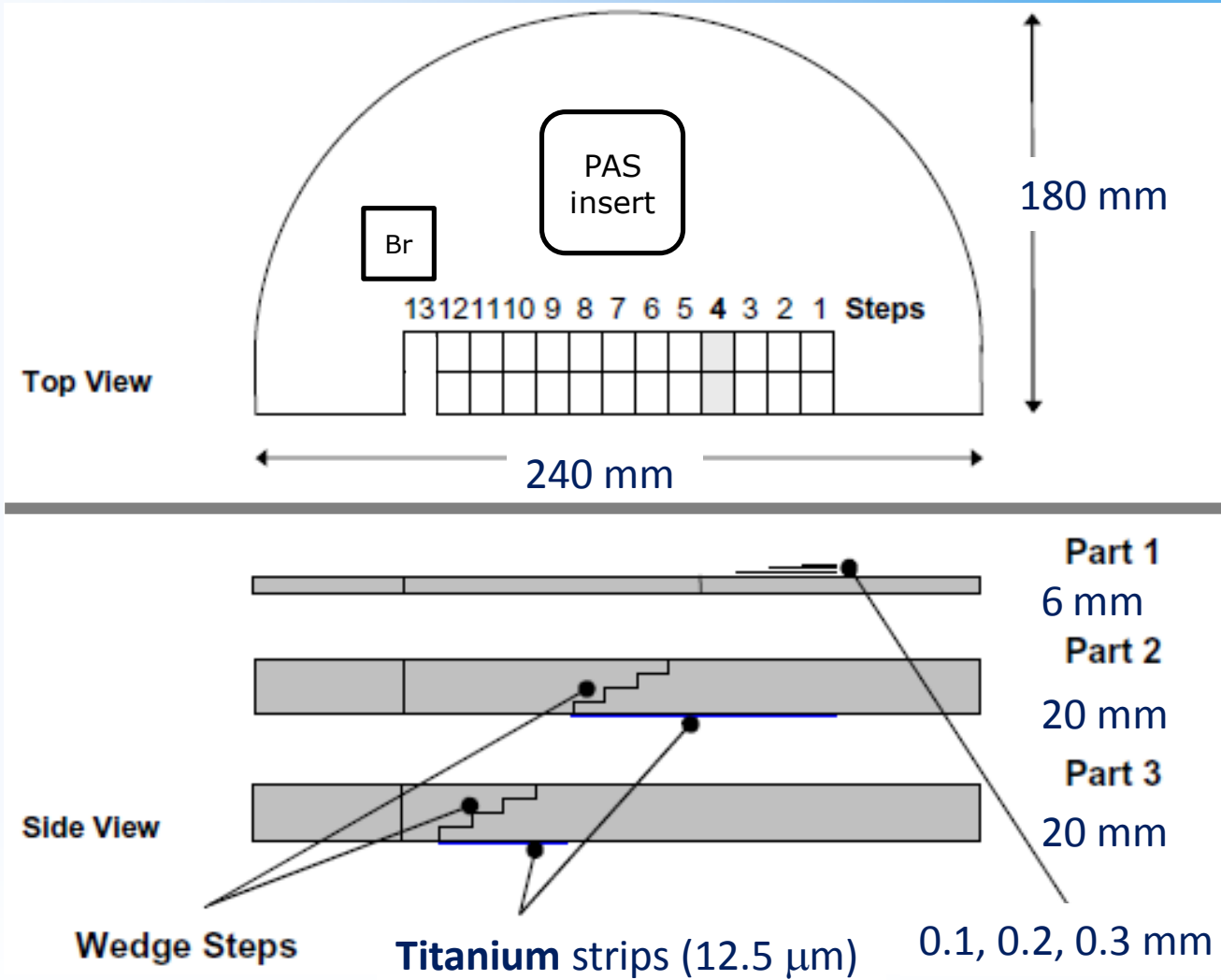
*Hugo de las Heras Gala, Felix Schöfer,
Britta Tiller*
(QUART GmbH, **Germany**),

Margarita Chevalier del Río
(Universidad Complutense de Madrid, **Spain**),

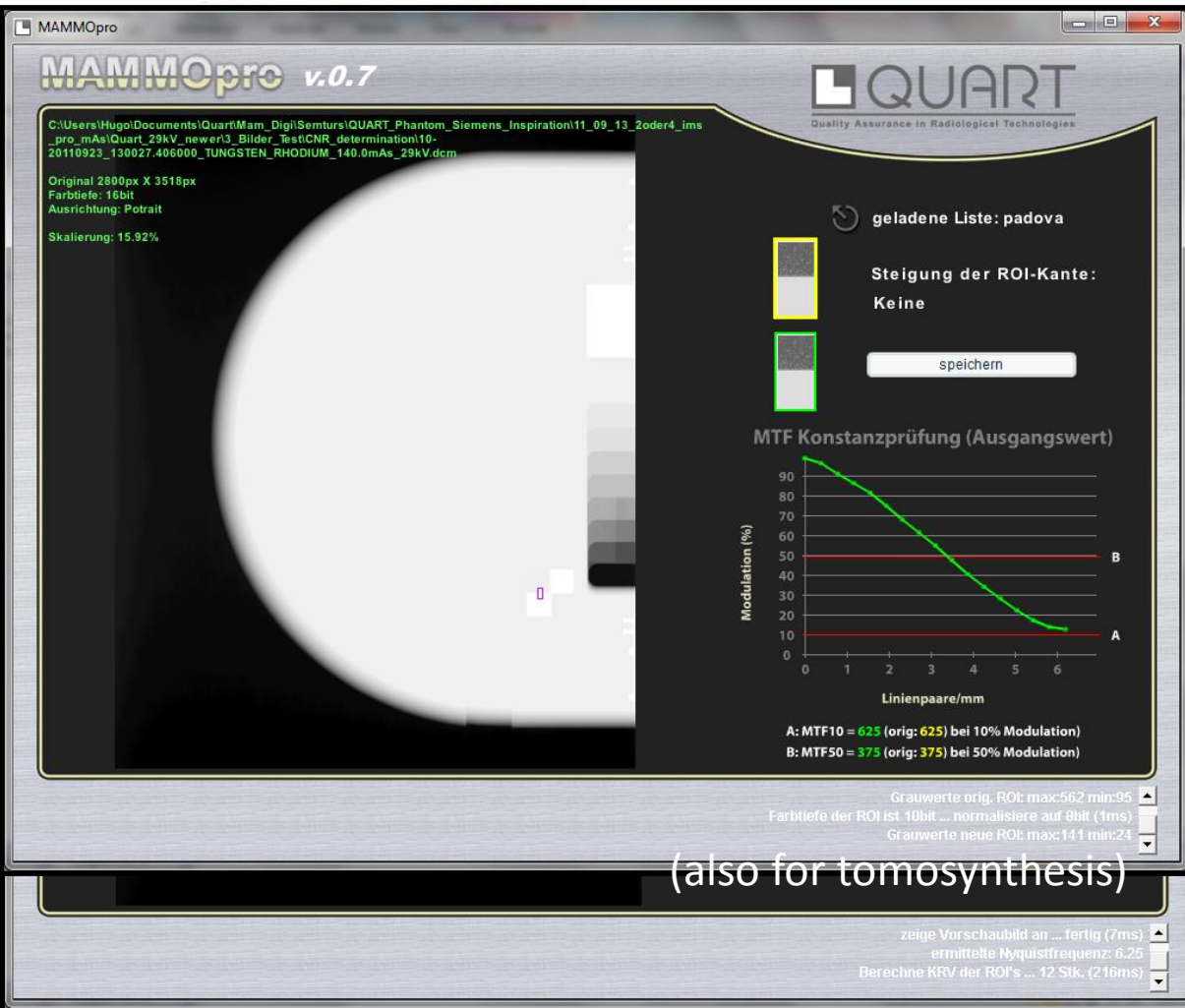
Georg Zwettler and Friedrich Semturs
(Medizinische Universität Wien, **Austria**)



The phantom is a **46 mm-thick PMMA block (IEC)** with a step wedge simulating **0-60 mm of PMMA**



The QUART phantom contains objects for all tests included in the European guidelines (EPQC)



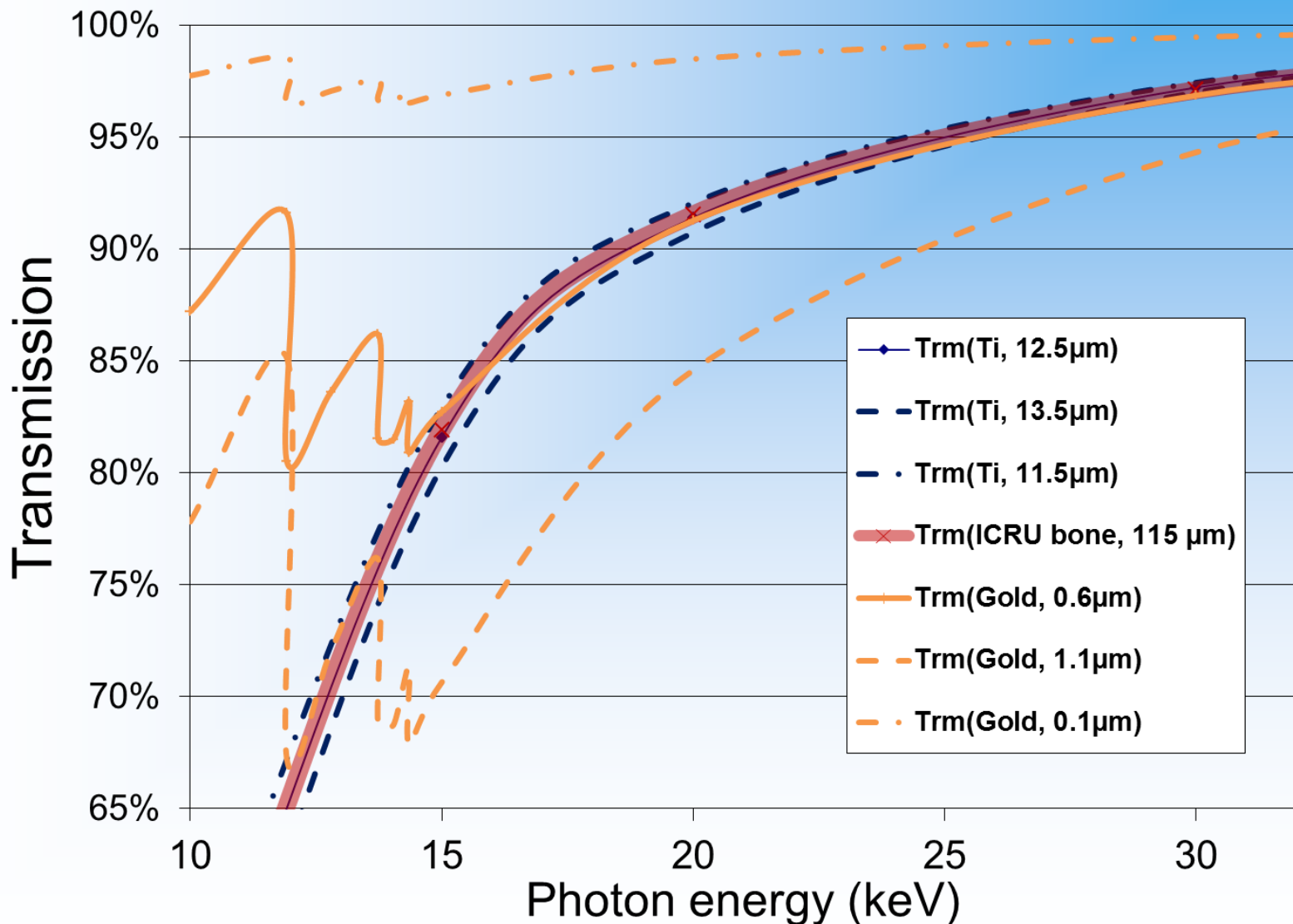
(also for tomosynthesis)

Slot for detector

A *different* group of Landolt rings in each step

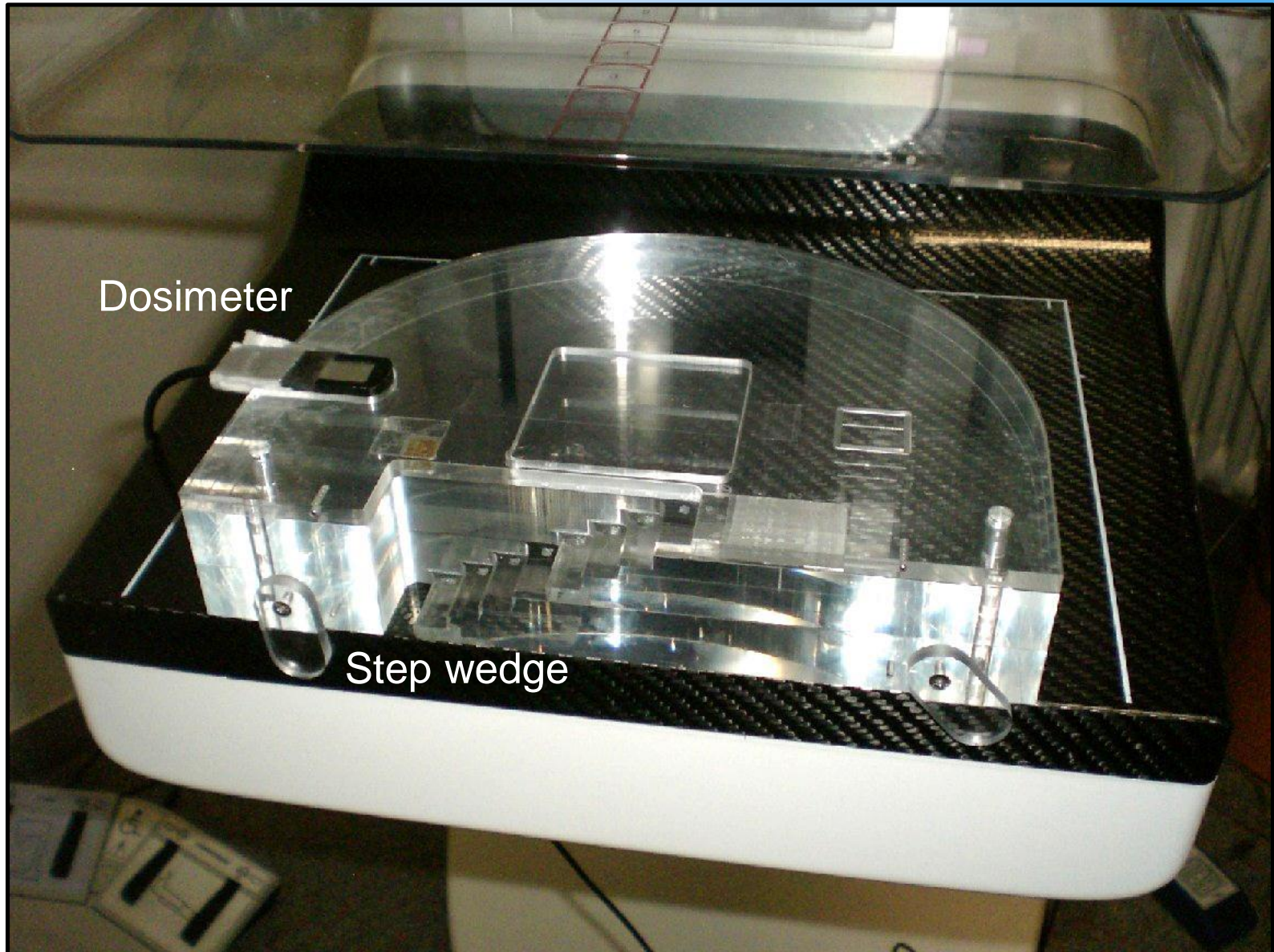
(also for tomosynthesis)

X-ray transmission through microcalcifications and through titanium is very similar



(Data from ICRU 44 and NIST)

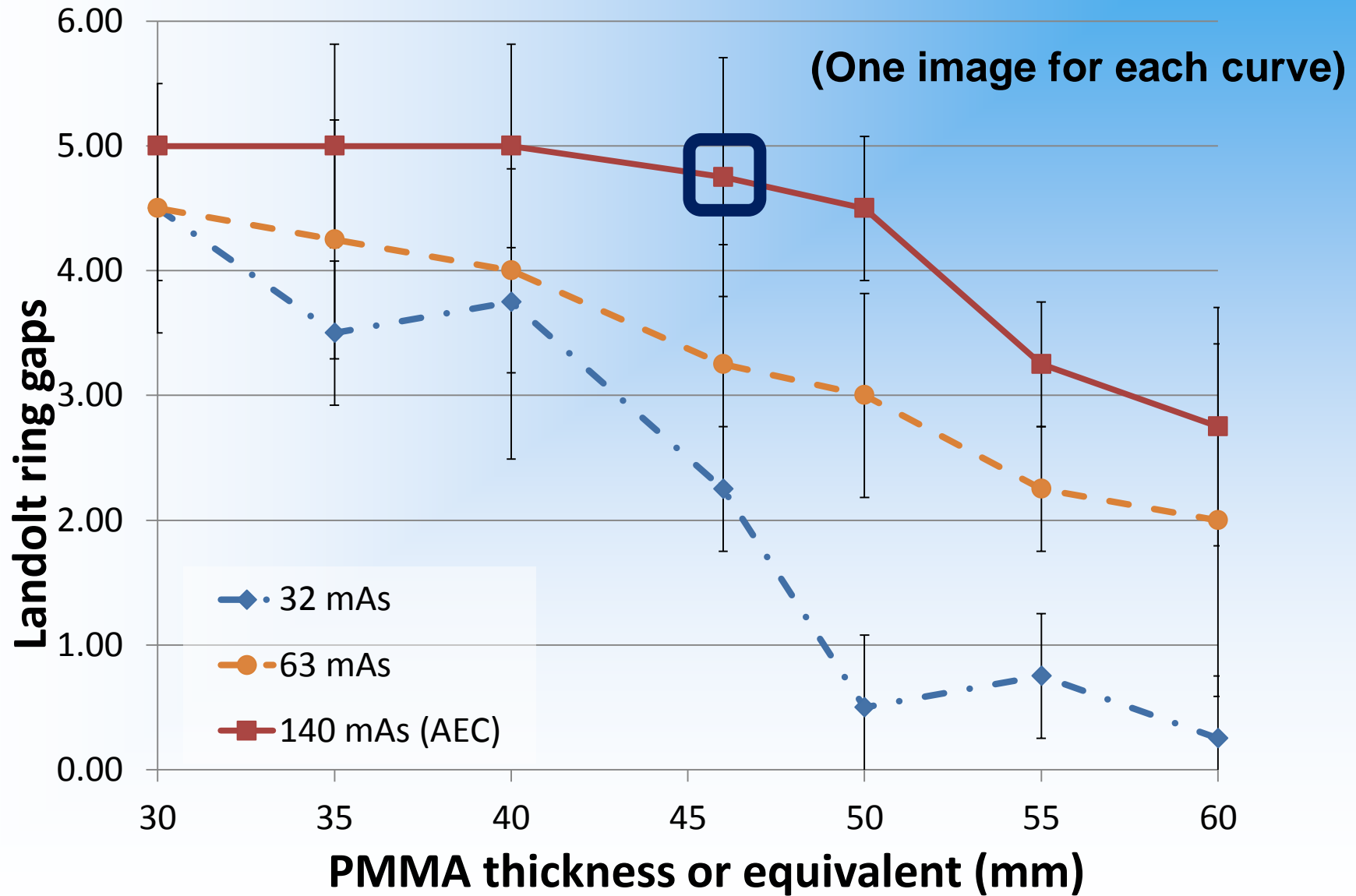
QUART phantom and dosimeter were used to measure image quality and entrance skin air kerma



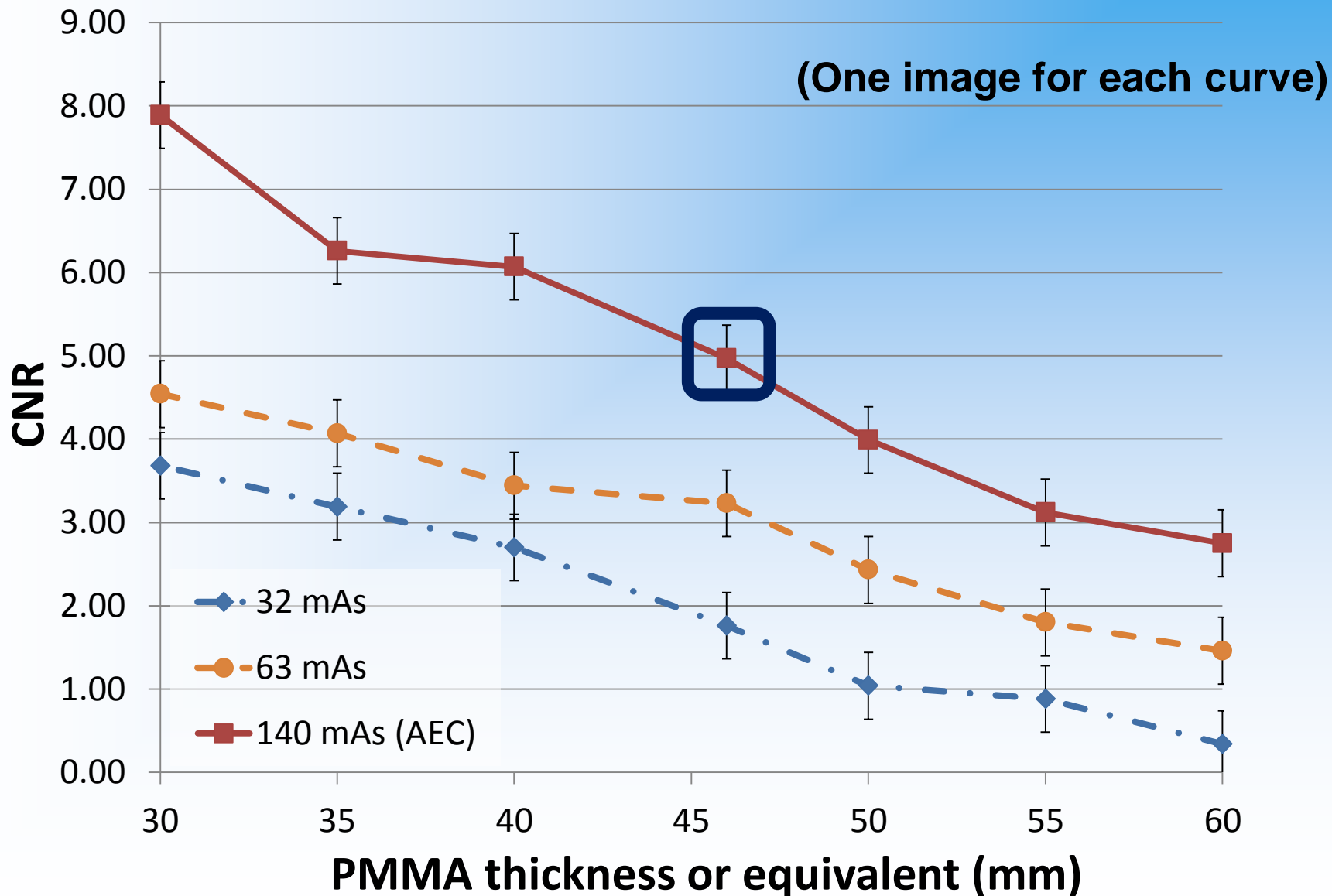
Dosimeter

Step wedge

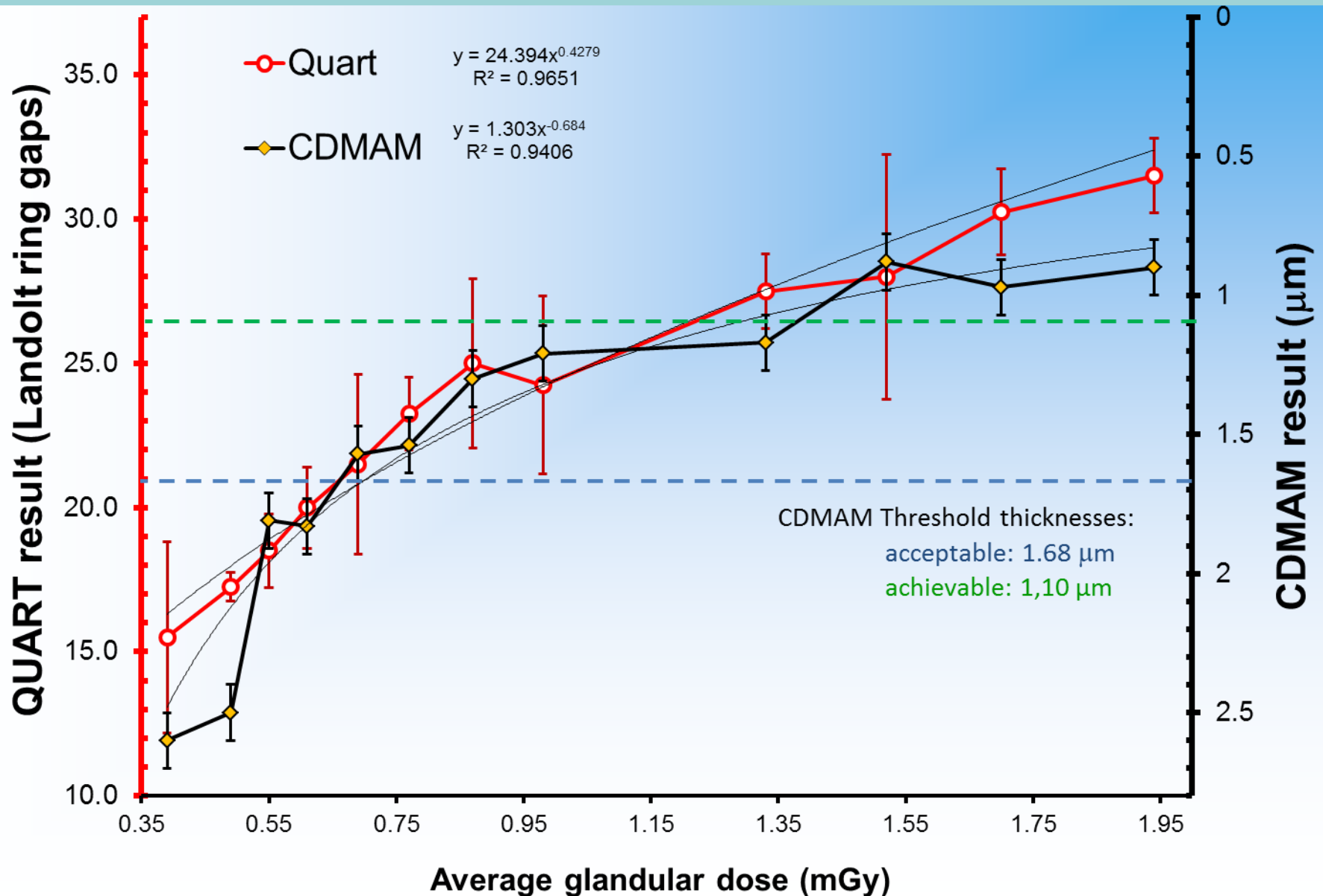
The evaluation provides a **score** as a function of the PMMA thickness **for the Landolt rings**



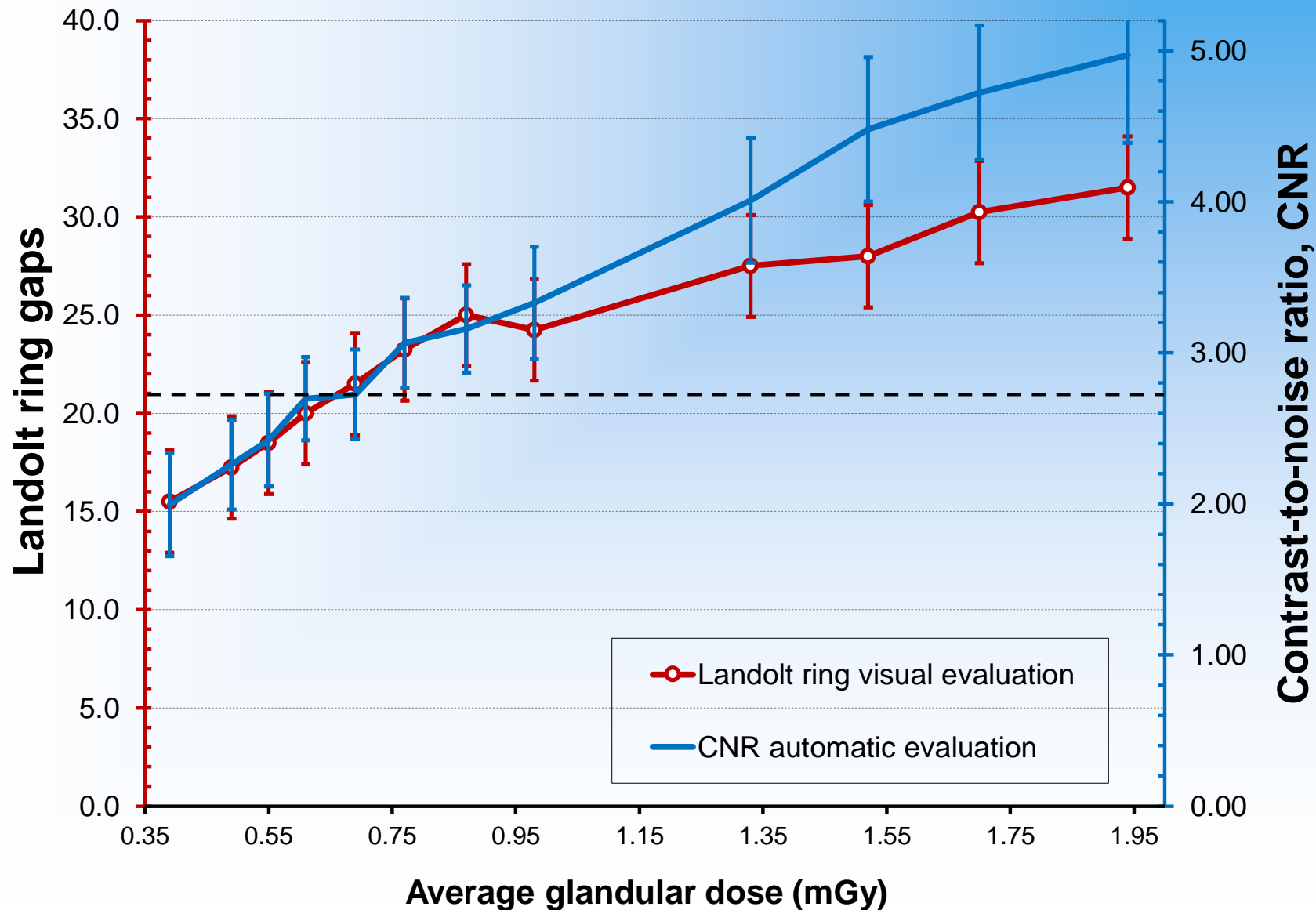
The evaluation provides a **score** as a function of the PMMA thickness **also for the contrast-to-noise ratio**



Acceptable and *achievable* thresholds can be set compliant with the **European Protocol for QC**



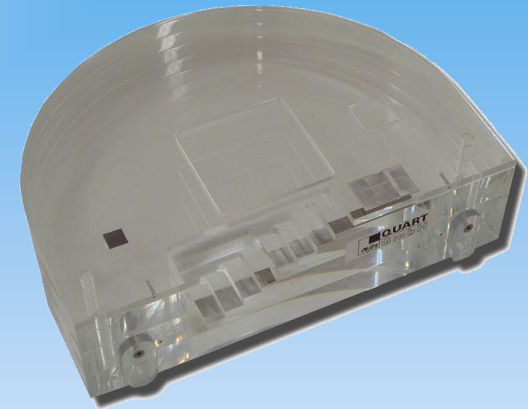
The **visual** and the **automatic** evaluation are equivalent



In summary, the QUART method is an **efficient solution** for **routine and acceptance tests**

The QUART phantom is **compliant with European Protocol (EPQC)**

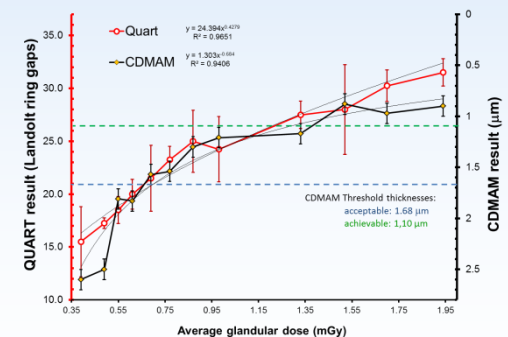
- Visual **contrast-detail** test using *titanium* (15 minutes)
- **Automatic** evaluation of **CNR** and **MTF** (5 minutes)
- Sensitivity **equivalent to established test** (CDMAM)



In addition, the *step wedge*

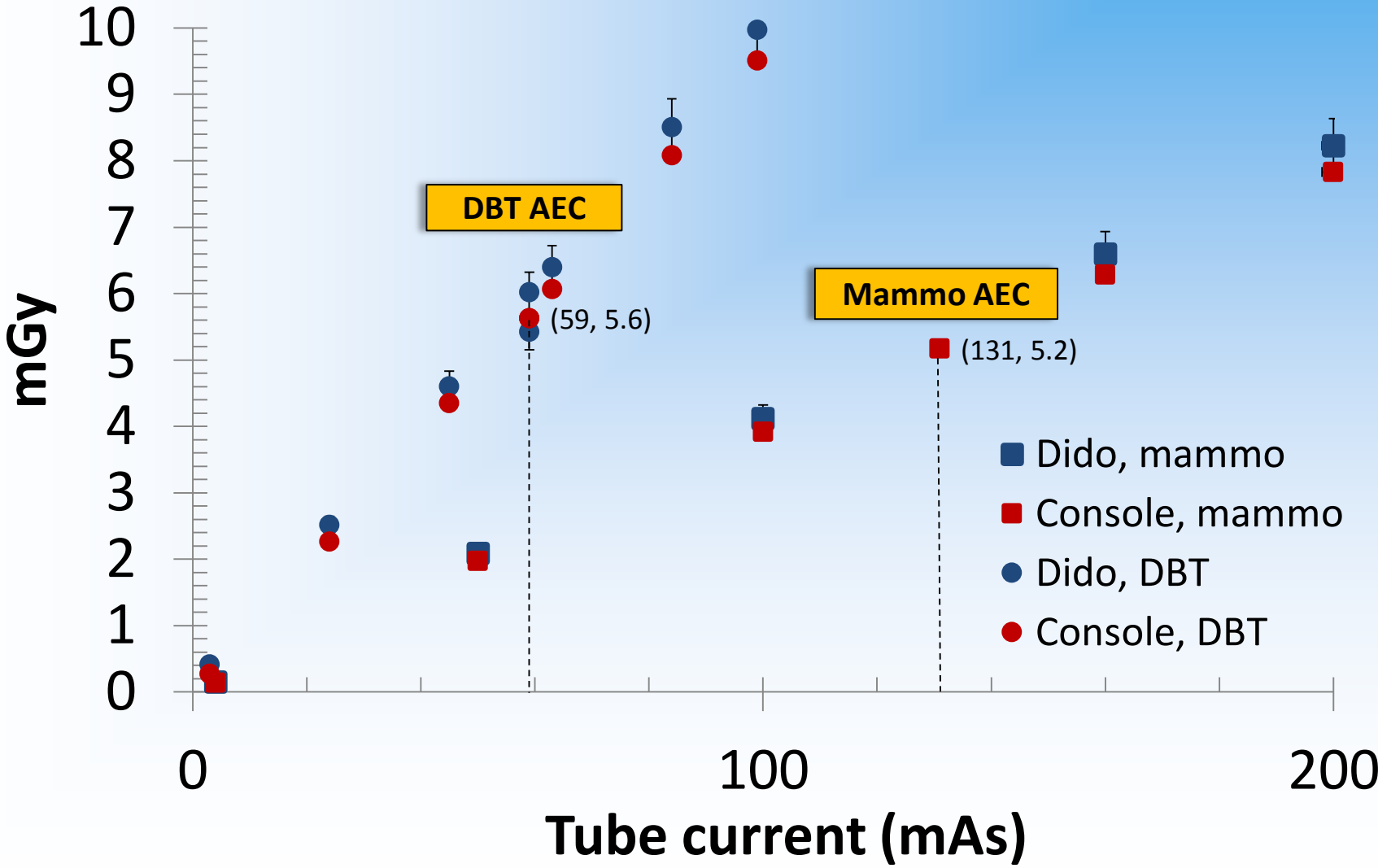
- considers variations in **thickness and tissue density** within the breast
- offers **tomosynthesis** evaluation

Questions or comments?

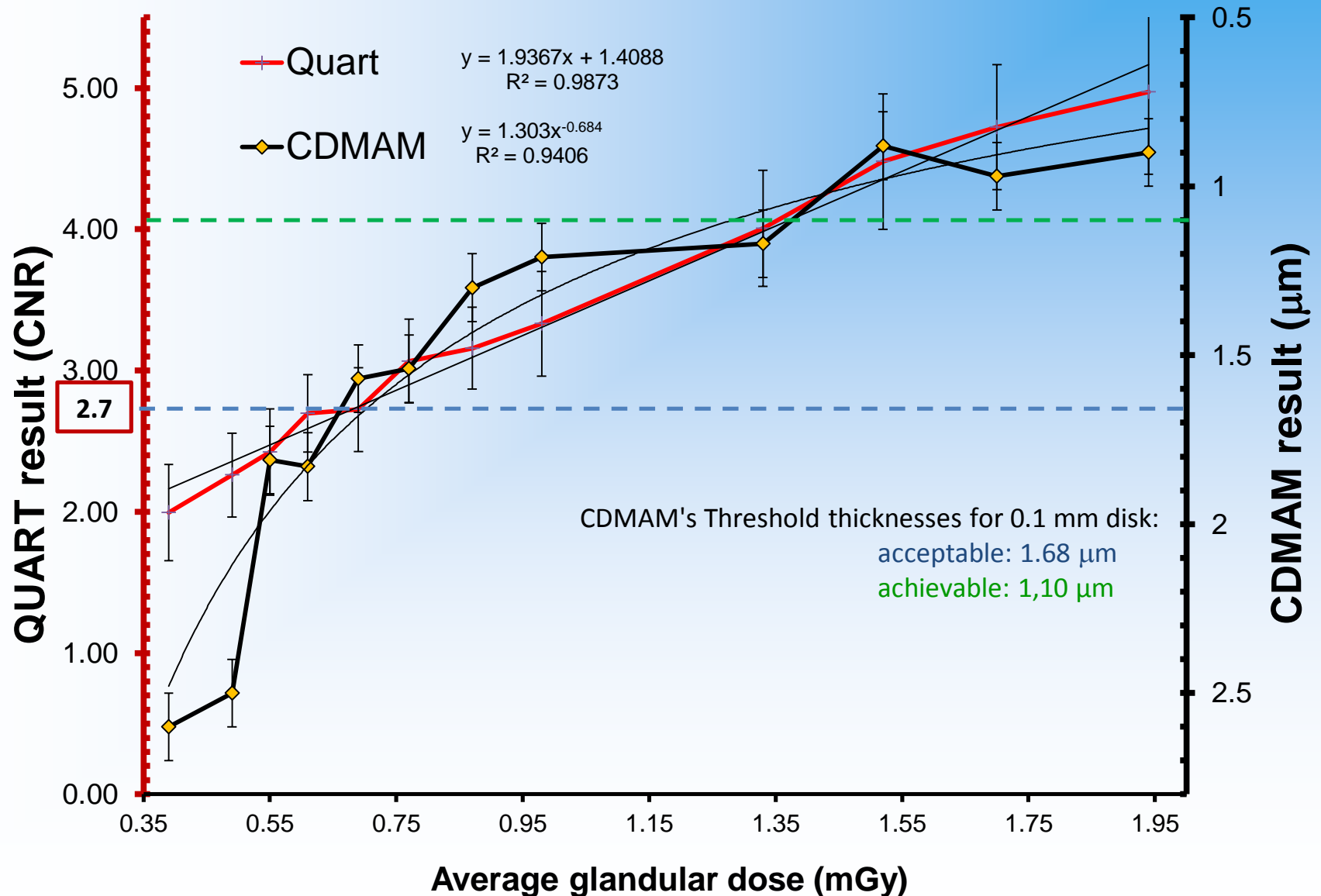


Back-up
slides

The entrance skin air kerma measurements show agreement with respect to the console readings

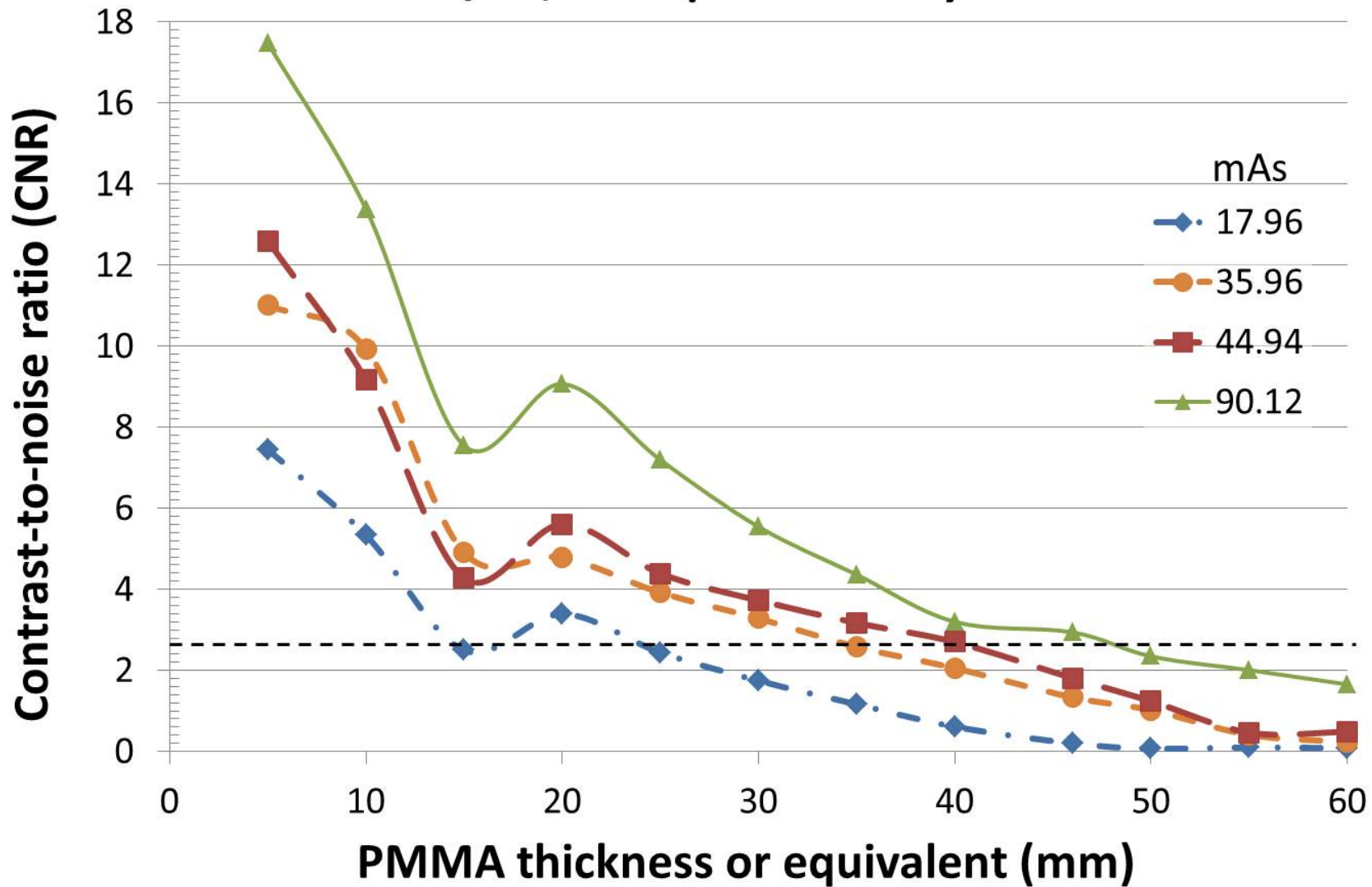


Acceptable and *achievable* thresholds can be set also for the automatic evaluation of CNR

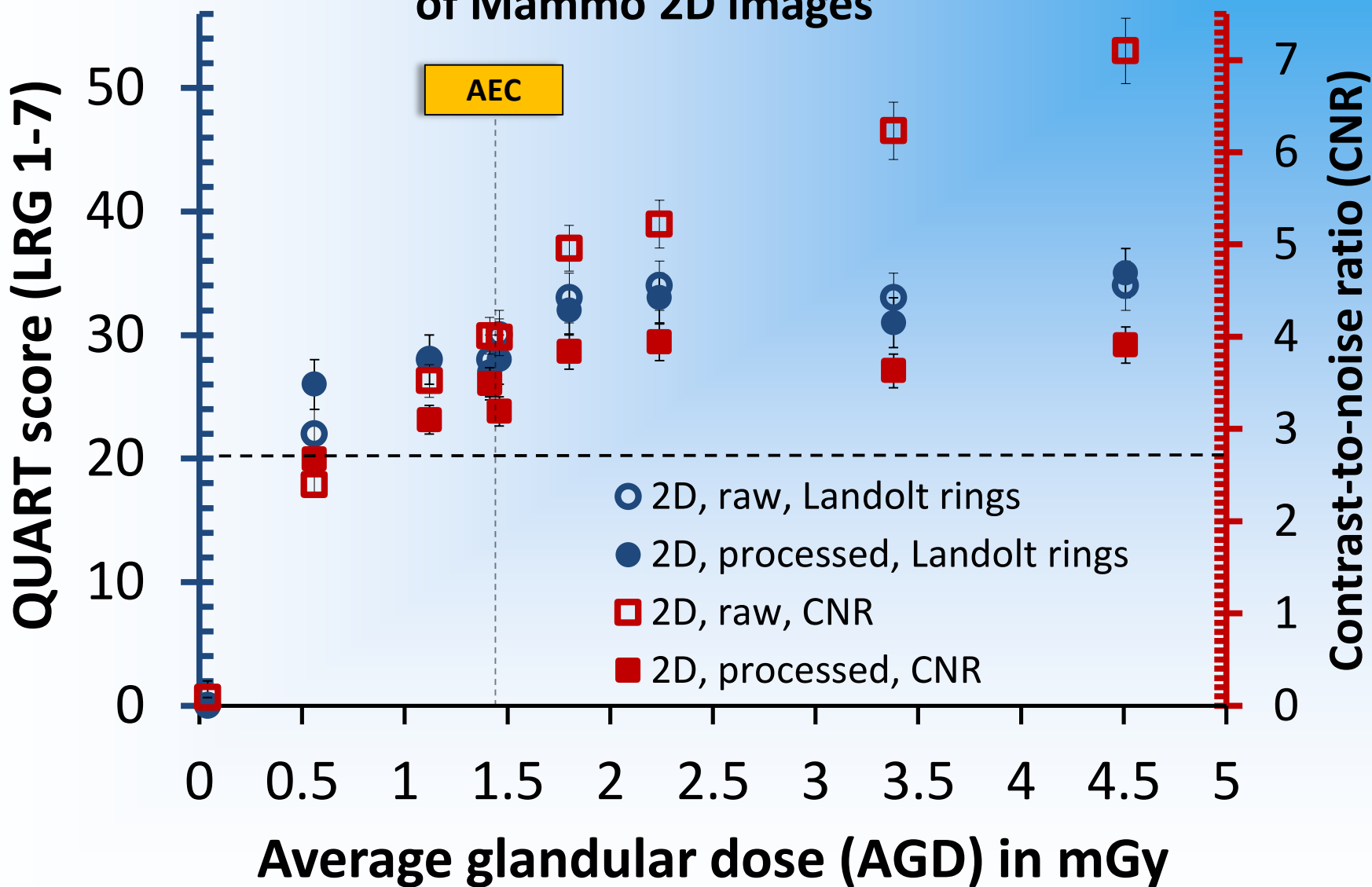


QUART evaluation of Fujifilm in Clínica la Milagrosa

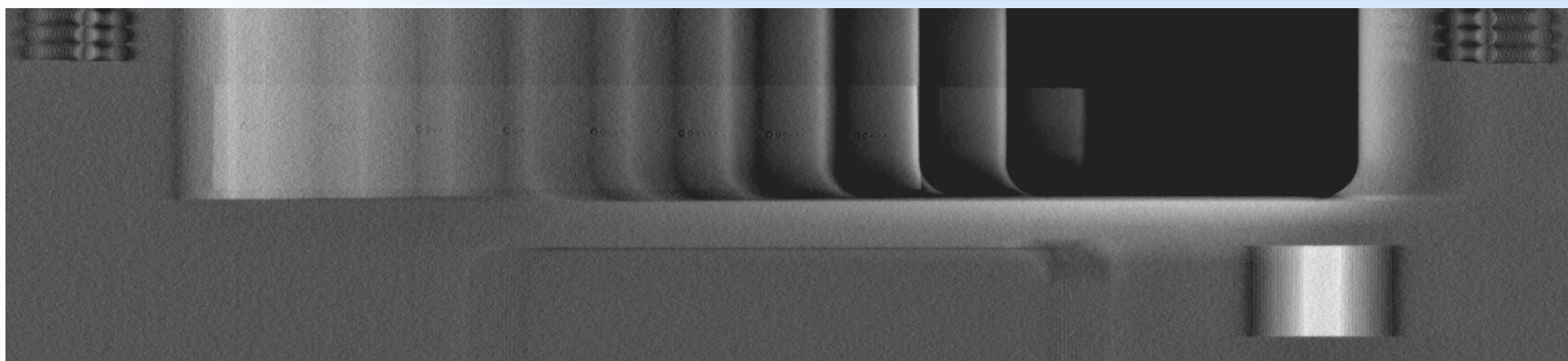
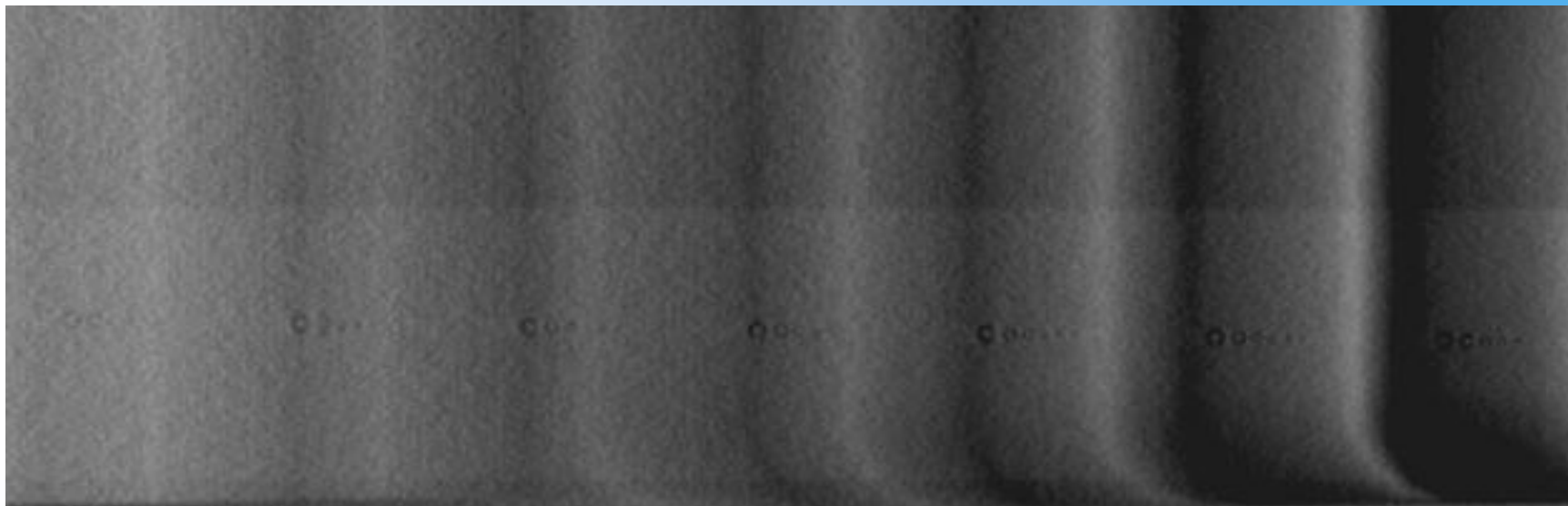
W/Rh, 30 kVp - February 2012



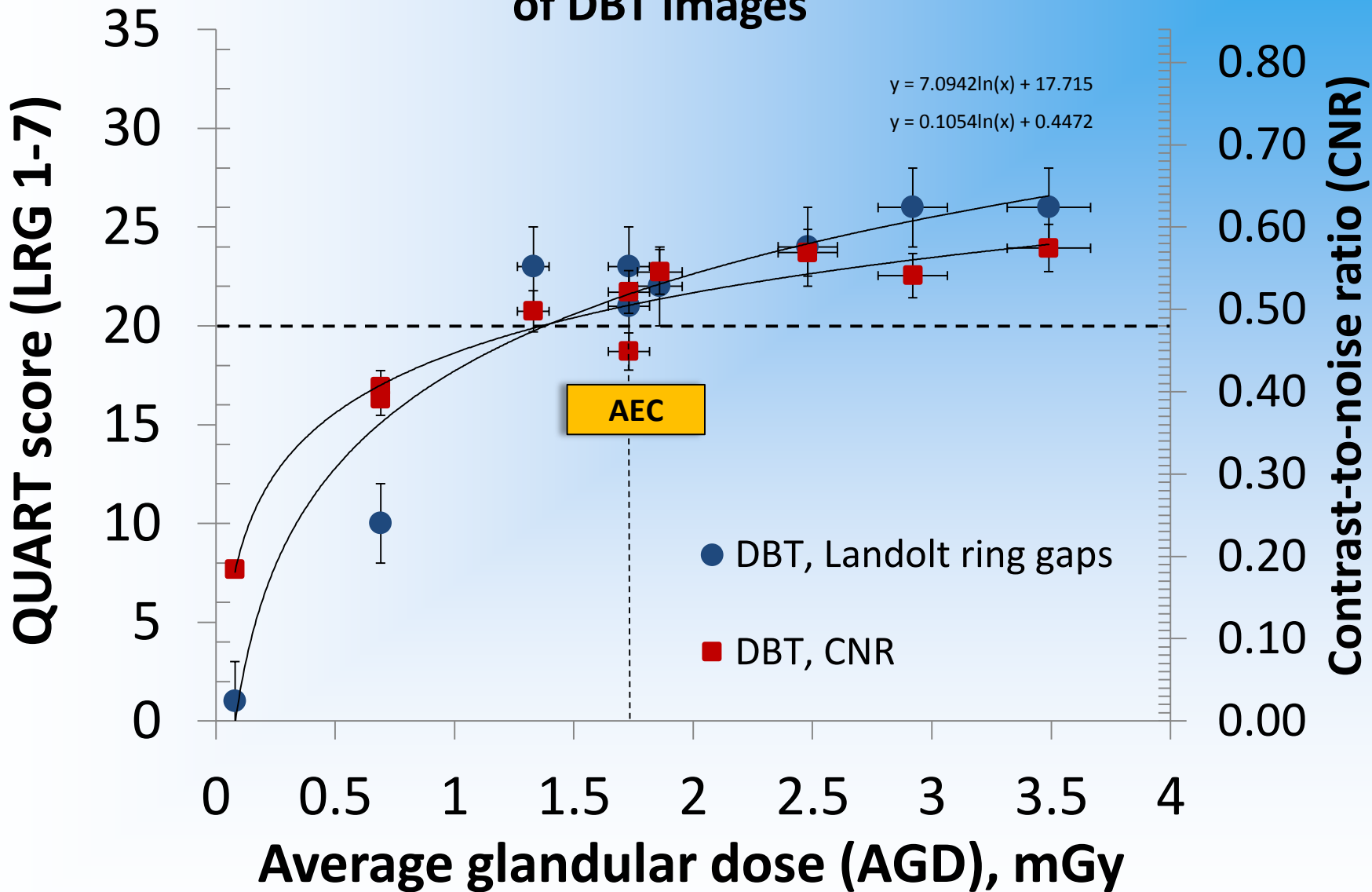
Visual and automatic evaluation of Mammo 2D images



Tomosynthesis image of QUART mam/digi phantom



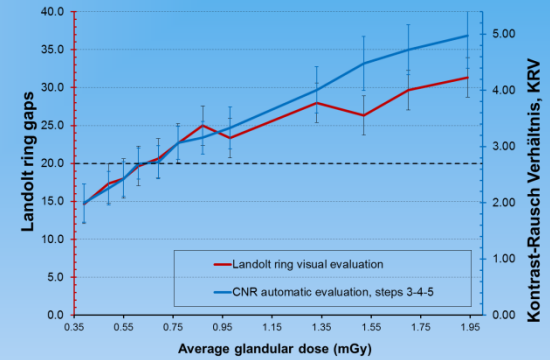
Visual and automatic CNR evaluation of DBT images



This talk presents an **efficient method** for quality control and results from an example **routine test**



Visual and automatic evaluation



Results and comparisons

Phantom description

