

New measurement technique will help in fight against cancer

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NPL's point spread phantom allows Optical Coherence Tomography instrument manufacturers to align the optical pathways in their machines. This allows them to optimize their performance and ensure that the systems will operate within specification once they are deployed in the field. Credit: Dr Pete Tomlins, NPL

A new technique to catch cancer early has taken an important step forward thanks to the National Physical Laboratory (NPL). NPL's 'phantoms' will ensure an exciting new screening technique can be relied upon by hospitals to identify early signs of cancer.

The technique, Optical Coherence Tomography (OCT), is an increasingly popular method for looking beneath the surface of certain materials, notably human tissue. It is higher resolution and much quicker

than techniques such as MRI or ultrasound, with no ionising radiation, making it ideal for detecting changes in tissue structure which can indicate the early stages of [cancer](#).

However creating such images requires high precision, and any inaccuracy can lead to incorrect assumptions about cell disruption. This can mean missing opportunities for early, potentially life-saving treatment.

A new NPL product, called a 'point-spread phantom', will eliminate the risk of such errors. The phantoms are translucent cylinders of resin containing specially arranged particles designed to reflect light in a very specific way. By viewing the phantom with an OCT machine and analysing the image with NPL software, users can be certain the machine is producing accurate images, which they can rely on for important medical decisions.

These 'phantoms' will also allow manufacturers of OCT technology to meet the necessary standards to guarantee to hospitals that their machines are sufficiently accurate. This will help speed the route to market of products using this important new technology, and assure hospitals of their ongoing reliability.

Michelson Diagnostics is the first UK company to use NPL's phantoms to validate the accuracy of their machines. CEO John Holmes said:

"We developed breakthrough technology for imaging living tissue and for detecting diseases, but we needed to validate our performance claims, to provide customers with greater confidence in them. NPL's phantoms and analysis have enabled us to validate our claims beyond doubt, thereby demonstrating the superiority of our scanners and giving us the edge over our competitors. We expect that this validation will give OCT technology the backing it needs to become standard in hospitals

around the world, and thereby make an important progression in the battle against cancer".

Provided by National Physical Laboratory

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