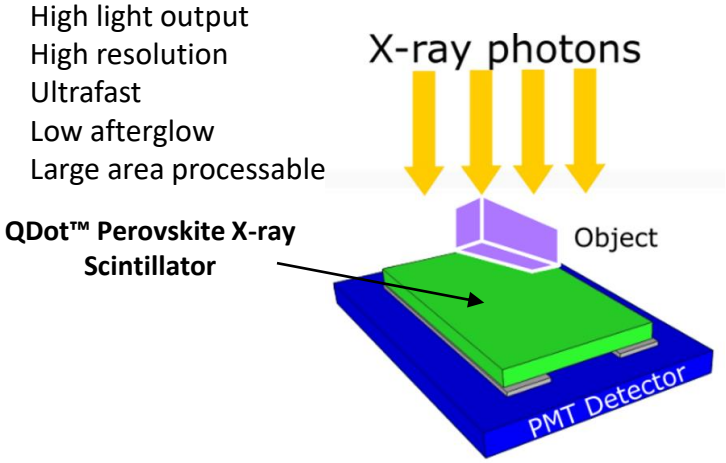
Quantum SOLUTIONS™

QDot™ Perovskite X-ray Scintillator

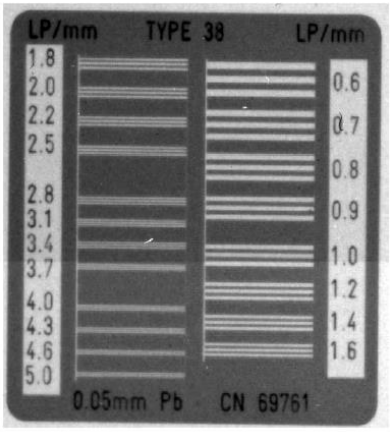
X-ray scintillators, which are capable of converting ionising radiation into visible photons, are very important for such areas as: inspection, failure/cracks detection, security X-ray imaging, nuclear cameras, and computed tomography. QDot™ Perovskite X-ray Scintillators exhibit strong visible luminescence under X-rays, and this luminescence can be read by conventional silicon imaging cameras or CMOS readouts. QDot™ Perovskite X-ray Scintillators can be used as efficient X-ray scintillators alternative to CsI(Tl) and GADOX scintillators due to their compelling combination of high light output, impressive resolution, high radiation hardness and ultrafast speed. Read this article to learn more about the technology.

SCINTILLATOR BENEFITS:

- Highly sensitive material for X-ray scintillation
- High light output
- High resolution
- Ultrafast
- Low afterglow
- Large area processable



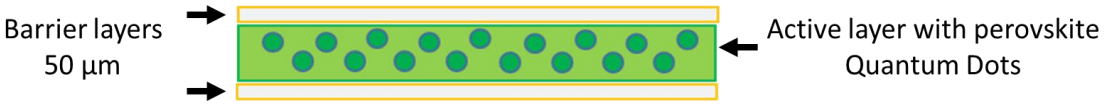
IMAGING EXAMPLE:



Imaging of line-pair phantom using QDot™ Perovskite X-ray Scintillator

SCINTILLATOR PERFORMANCE:

QDot™ Perovskite X-ray scintillators are in the product development step. Evaluation products are available for purchase. The product consists of a polymer film with perovskite quantum dots protected by barrier layers from both sides.



Light output (%CsI(Tl)*)	Light output (% GADOX**)	Resolution (MTF = 0.1)	Matrix type	QDot concentration, wt%	Film Sizes	Active layer thickness
Up to 100%	Up to 50%	2.5 lp/mm	Polymer resin	50 wt%	Variable up to 20×20 cm	Variable 100-300 µm

*CsI(Tl) columnar scintillator (same thickness), Hamamatsu, 70 kV.
**Gadolinium oxysulfide (Tb) (same thickness), Mitsubishi, 70 kV.

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