

Technical Data Sheet

QDot™ Perovskite X-ray Scintillator

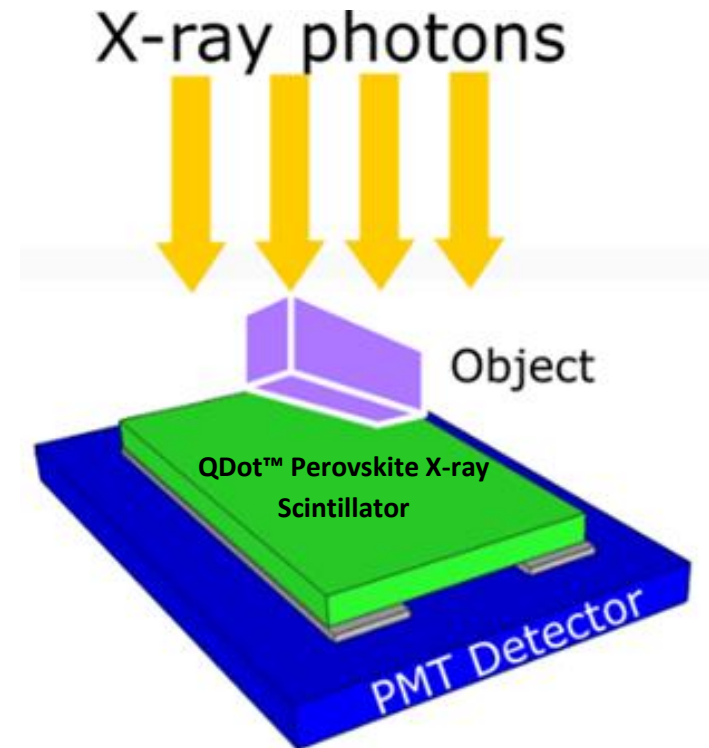
Version 2.1
Revised Date 29/11/2022

Introduction

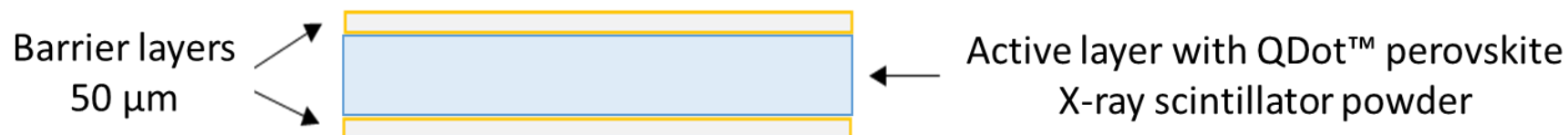
X-ray scintillators, which are capable of converting ionising radiation into visible photons, are very important for such areas as: inspection, failure/cracks detection, security X-ray imaging, nuclear cameras, and computed tomography.

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, lead free, 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. One feature that distinguish this scintillator from others are extremely short decay time and low afterglow.

These lead-free scintillators are solution processed that implies the scalability of this technology using cost efficient manufacturing methods, such as roll-to-roll production.



Specification of QDot™ Perovskite X-ray Scintillator



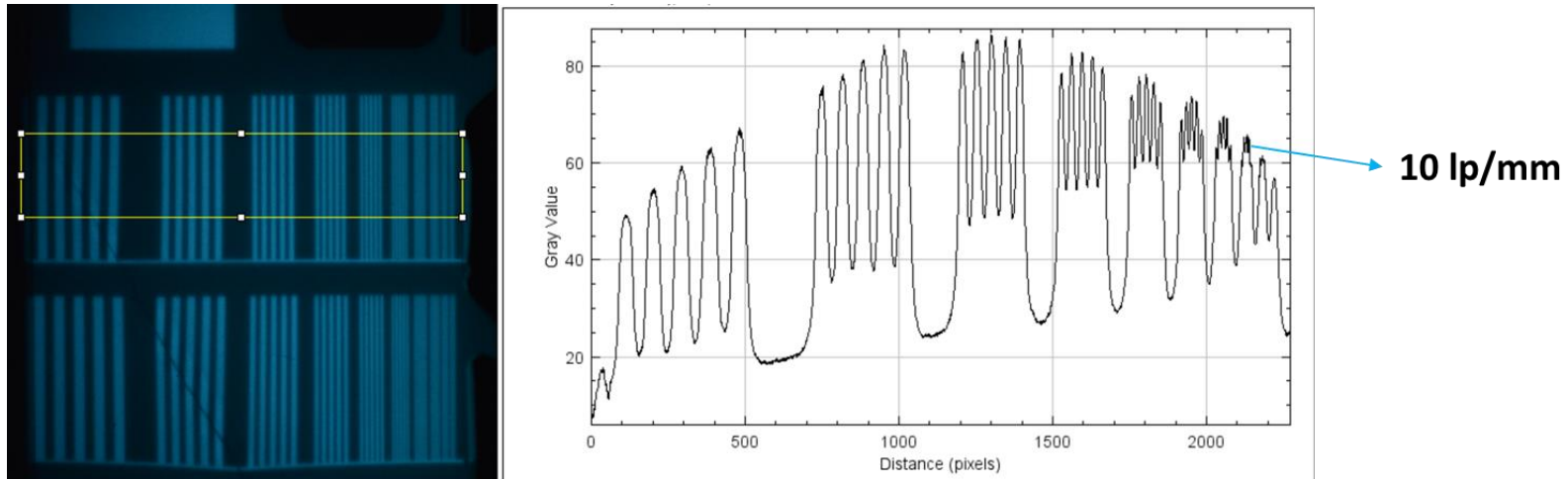
Light output (%CsI(Tl)*)	Light output (% GADOX**)	Resolution (MTF = 0.2)	Decay time to 10%	Afterglow <0.1%	Matrix type	QDot type and concentration, wt%	Film Sizes	Active layer thickness
Up to 100 %	Up to 50%	7-11 lp/mm	< 1 μs	2 ms	Polymer resin	Lead-free perovskite powder 50 wt%	Variable up to 15×15 cm	Variable 100-300 μm

*CsI(Tl) columnar scintillator (same thickness, without intensifiers (reflectors, etc.)), Hamamatsu, 120 kV.

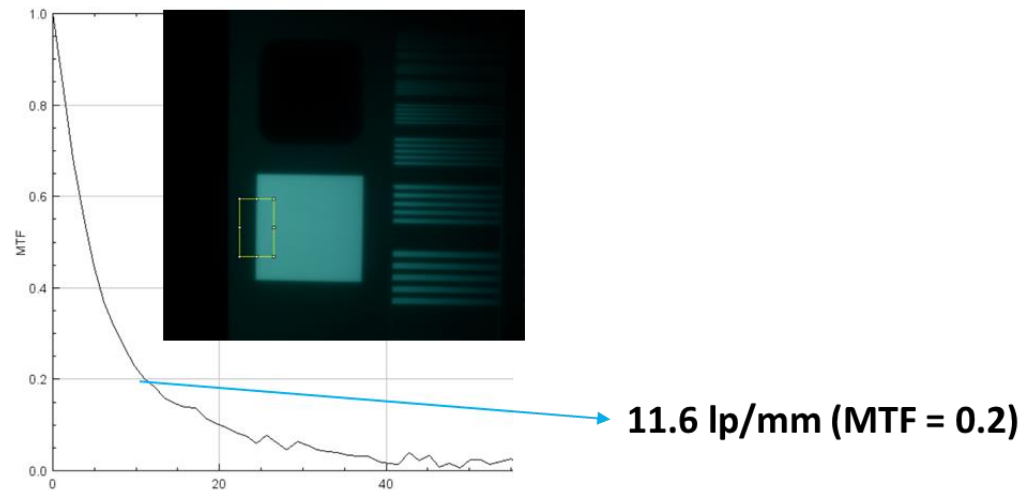
**Gadolinium oxysulfide (Tb) (same thickness, without intensifiers (reflectors, etc.)), Mitsubishi, 120 kV.

[QDot™ Perovskite powder to fabricate X-ray scintillators are available for purchase.](#)

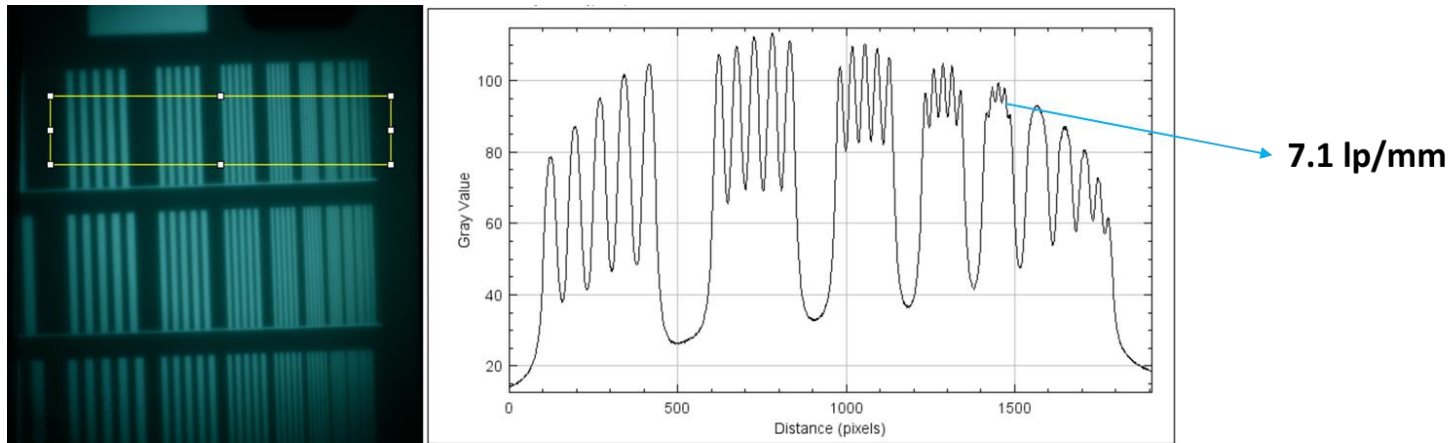
QDot™ Perovskite X-ray Scintillator resolution – 100 μm



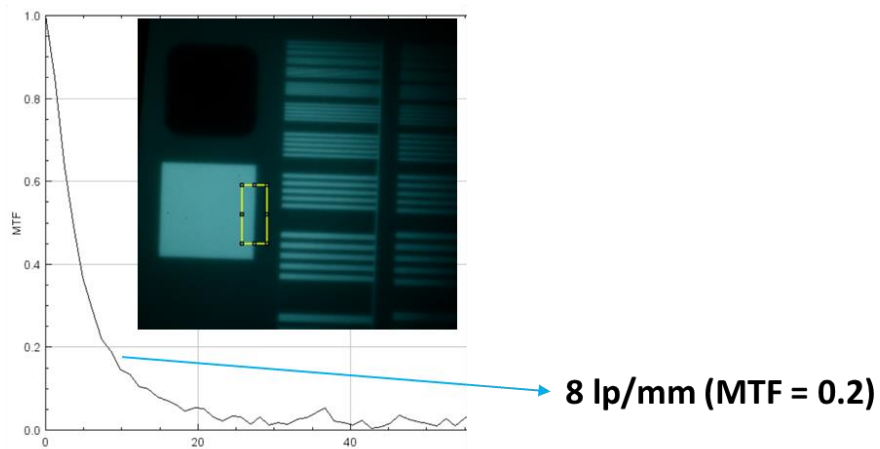
MTF



QDot™ Perovskite X-ray Scintillator resolution - 200 μm



MTF



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