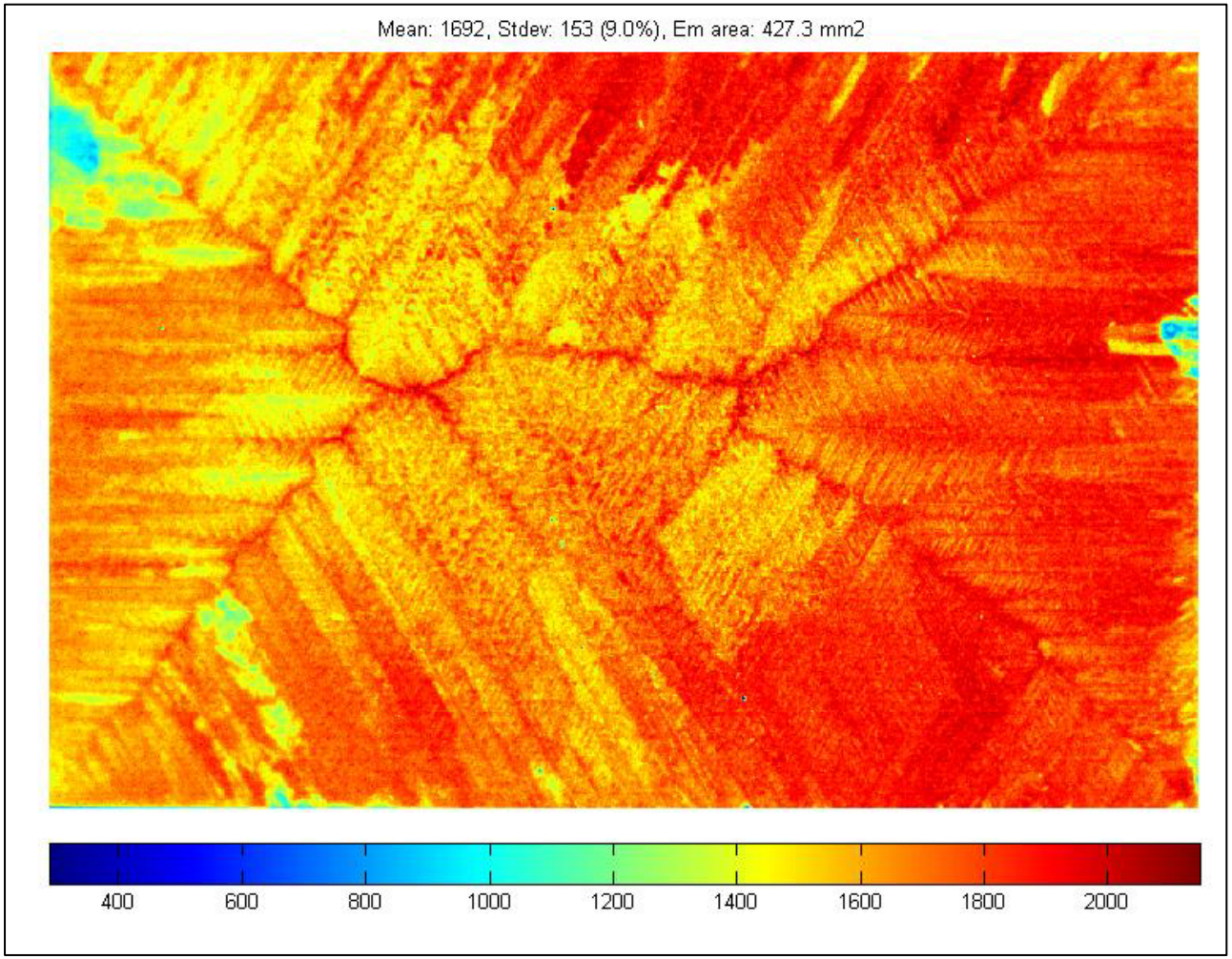
Information on Scint-X Structured Scintillators Prototype Order

September 2009

Order Summary

- We order 2 “prototype” sample at $4k each (PARIS Req F9-194039)
  - One for Almer (“S205”) and other for Toby/Von Dreele (“S196”)
- Here are the Specs:
  - Active area: 16x24 mm
  - Physical size: 20x28mm (c:a)
  - Scintillator layer thickness: 200 um
  - Scintillator material: CsI[Tl]
  - Pore spacing: 26um (hex.structure)
  - Resolution and MTF characteristics: Please see enclosed paper. (MTF characteristics for the 26um hexagonal pore spacing would be close to the 20um square structures)
  - The scintillator material is effectively encapsulated in the silicon matrix, why the performance is not affected over time.
- Per Wiklund supplied us with index oil (n=1.500) that is used to improve the optical coupling between the scintillator plate and the substrate (FOP or sensor). Apply one or two drops and carefully place scintillator on the (dust free!) sensor/FOP. Manufacture is Cargille Labs (http://www.cargille.com). (“Series A, n=1.500 @ $19 USD/bottle”). Tim Madden has suggested using Nye Optical grease.
- We were also supplied with 2D light emission images. See next two slides.

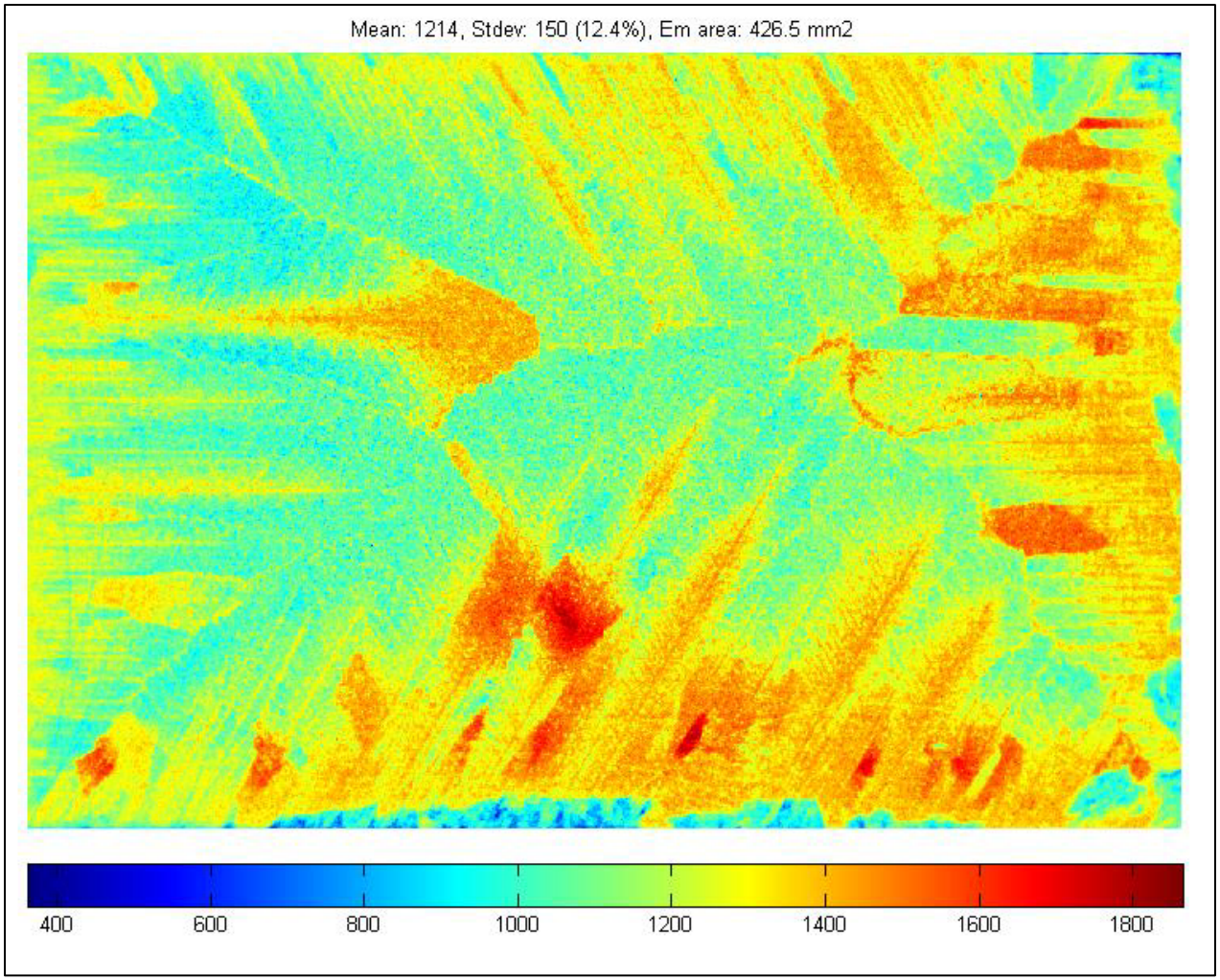
2D light emission maps from Scint-X



Conventional dental x-ray source (W anode), 70keV, 8mA, 125 ms

S196

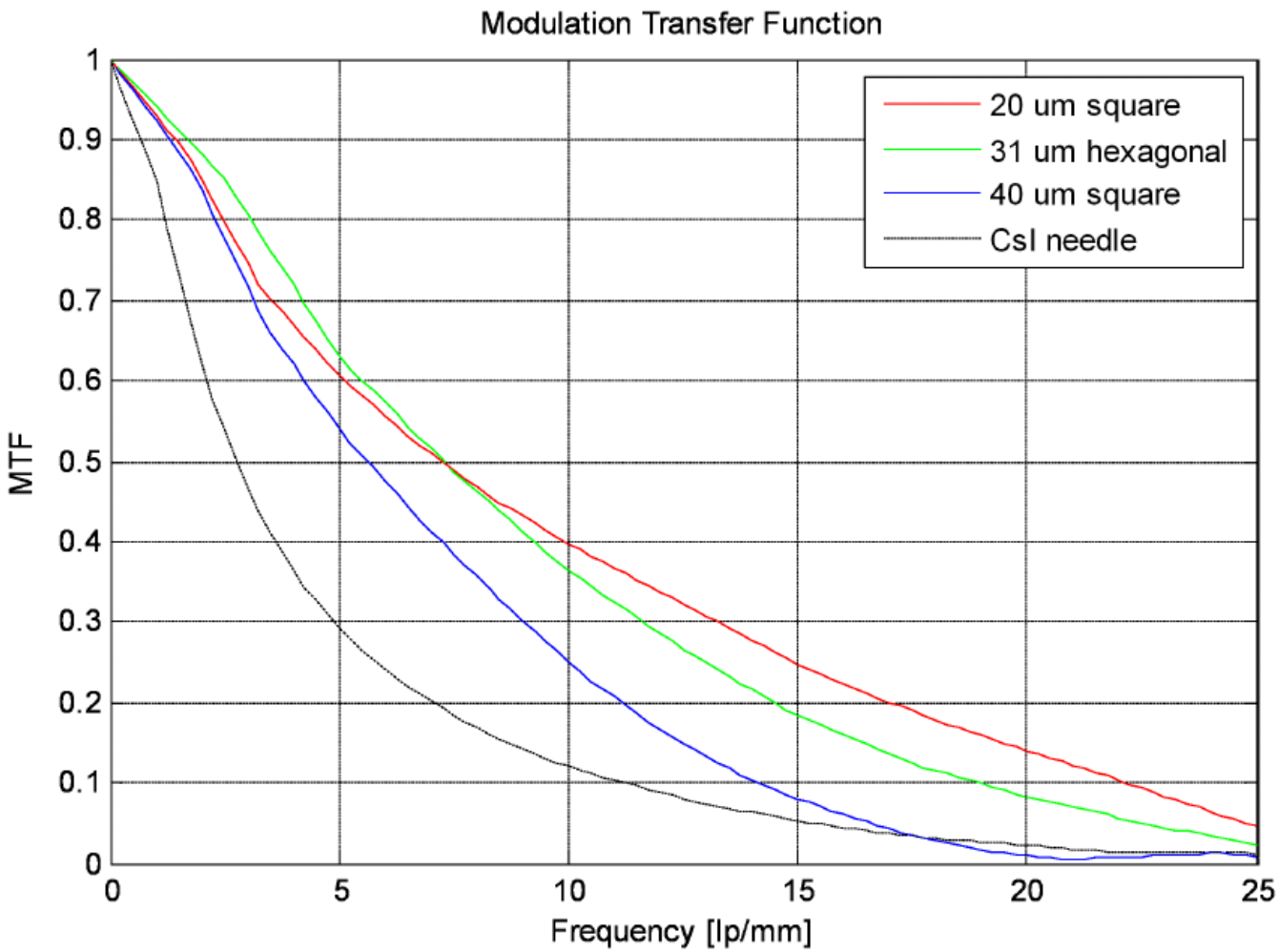
2D light emission maps from Scint-X



S201

Expected Performance

(Sahlholm et. al., *Selection of Dimensions and Geometry of a Structured Scintillator for x-ray Imaging*)



MTF for the 26um hexagonal pore spacing would be close to the 20um square structures

Conditions:

Dental x-ray source @ 70 kVp (35keV mean energy). Imaging was performed using CCD-detectors (Hamamatsu (S8981), having either a 1.5 or 3.0 mm thick fibre optic plate (FOP), where the standard scintillator had been removed. The CCD pitch was 20 um.