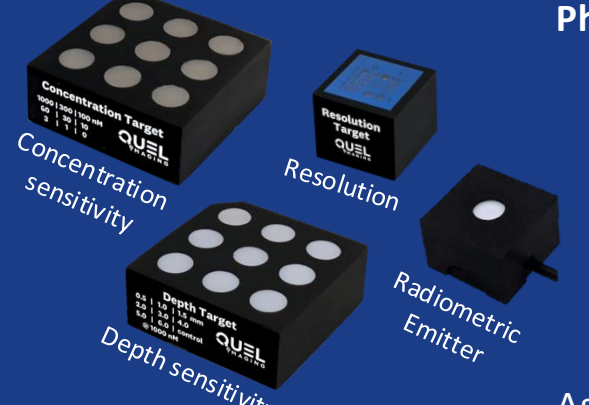




Phantoms with shelf-stable fluorescence ideal for system performance characterization

Standard Fluorescence Product Lines

Product Line	Similar Fluorophores
ICG-01	Indocyanine Green (ICG)
Q800-01	Pafolacianine, IRDye™800 CW
Q700-01	SGM-101, Cy5.5

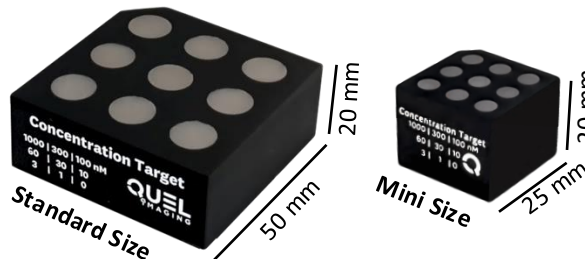
Ask us about custom fluorophore applications!

Concentration Sensitivity Target

- 9-well concentration target
- Concentration range:
1000 – 1 nM with
1 control well (0 nM)

Well ø -

- 1 cm (Standard)
- 0.5 cm (Mini)



Optical Properties:

ICG-01 targets at 800 nm

$$\mu_a: 0.027 \text{ mm}^{-1}$$

$$\mu_s': 0.42 \text{ mm}^{-1}$$

Q800-01 targets at 800 nm

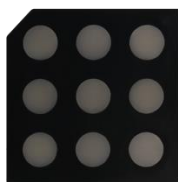
$$\mu_a: 0.06 \text{ mm}^{-1}$$

$$\mu_s': 1.26 \text{ mm}^{-1}$$

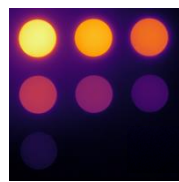
Q700-01 targets at 700 nm

$$\mu_a: 0.037 \text{ mm}^{-1}$$

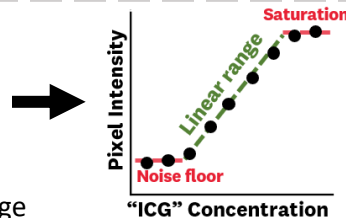
$$\mu_s': 0.456 \text{ mm}^{-1}$$



Top view

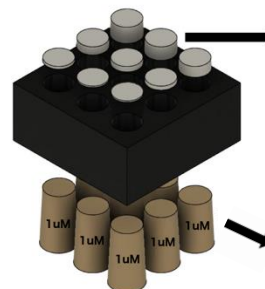
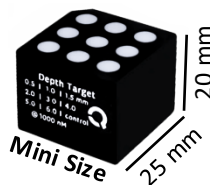
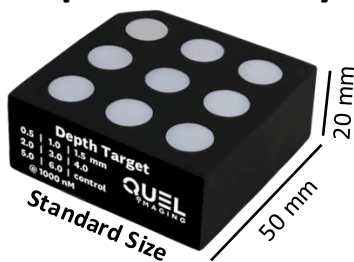


Fluorescence Image



Shelf stable serial dilution with tissue relevant optical properties

Depth Sensitivity Target



- 9-well depth target
0.5 – 6 mm depth wells + control (no fluorescence)
- Well ø - 1 cm (Standard), 0.5 cm (Mini)
- Well concentrations: 1000 nM

Optical Properties of Depth Material:

ICG-01 and Q800-01 target

$$\mu_a: 0.011 \text{ mm}^{-1} \text{ at } 800 \text{ nm}$$

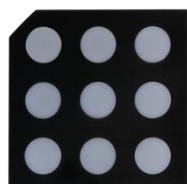
$$\mu_s': 1.52 \text{ mm}^{-1} \text{ at } 800 \text{ nm}$$

Q700-01 target

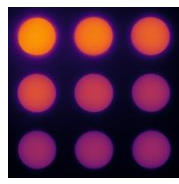
$$\mu_a: 0.009 \text{ mm}^{-1} \text{ at } 700 \text{ nm}$$

$$\mu_s': 2.36 \text{ mm}^{-1} \text{ at } 700 \text{ nm}$$

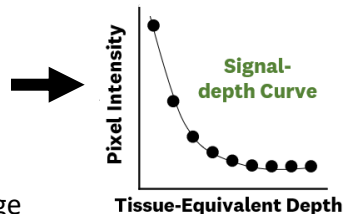
Optical Properties of Fluorescent Material:
Same as Concentration Sensitivity Targets



Top view

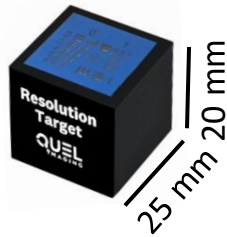


Fluorescence Image



Understand how your fluorescence signal changes with depth

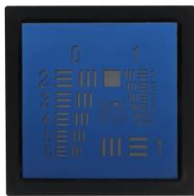
Resolution Target



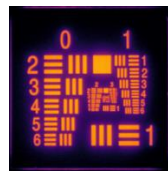
USAF 1951 resolution target with fluorescence

- Low-reflectivity coating for 850nm
- Spatial resolution Group 0 (1 lp/mm) through Group 7 (228.1 lp/mm)
- Fluorescent Material Concentration: 1000 nM

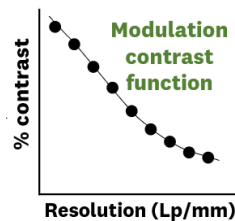
Optical Properties of Fluorescent Material:
Same as Concentration Sensitivity Targets



Top view

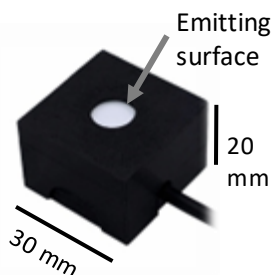


Fluorescence Image



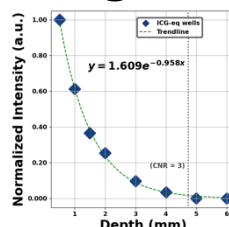
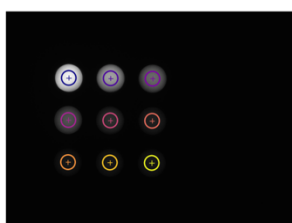
Check your imaging system's resolution down to $\sim 2 \mu\text{m}$ and calculate its modulation contrast function

Radiometric Emitter Target

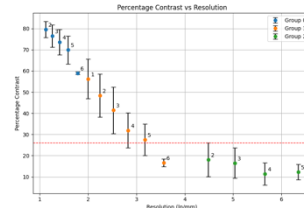
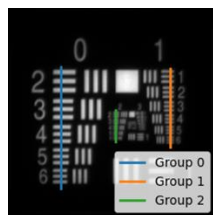


- Mimics NIR fluorescence emission (standard and custom wavelengths available)
- Designed to track photobleaching of fluorescent targets
- Decouples fluorescence imaging from laser excitation
- Adjustable radiometric output from $\sim 0.05 \mu\text{W}/(\text{cm}^2 \text{ str})$ - $300 \mu\text{W}/(\text{cm}^2 \text{ str})$

Image Analysis



- Semi- and fully-automated ROI extraction for QUEL reference targets
- Analysis provides relevant metrics about your imaging system, e.g. fluorescence limit of detection, spatial resolution limit
- Analysis code also available for other products, e.g. anthropomorphic phantoms



For access to this code repository, contact us here:



Resources

For detailed information on best practices for testing fluorescence imaging systems and the role our phantoms play in this process, please visit:

shop.quelimaging.com/resources.