3. Acquire a Transient Thermoreflectance (TR) Measurement

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The Transient Thermoreflectance module acquires thermal imaging data for pulses between 50 µs and 5 ms; it is only available with the Visible Camera. Worked example (values as given in the source):

1. Turn off the **"Int Vo 20mA Range"** button in Project Manager.
2. Set the **"DUT Pulse"** control to the desired pulse width (500 µs in the source example).
3. Set **"Voltage to Device"** (6.0 V in the example) and select **"Update Values."**
   - Switch to "Thermal Imaging" mode.
   - Confirm the device is heating as expected for the 500 µs delay.
4. Set **"Image Delay(s)"** to 0 to initialize the delay to 0 µs. (A transient measurement can be started at any initial delay time.)
5. Go to **File > Setup Sweep**. [diagram/image in source — not reproduced here: Figure 6, Setup Sweep]
6. Enter **"Number Delay Images"** (51 in the example).
7. Enter **"Delay Steps(s)"** (10.0 µs in the example) — the software will take 51 images in 10 µs steps starting at 0 s (covering 0–500 µs).
8. Enter **"Ave time per frame(s)"** (5 s in the example) — the software averages for 5 s at each image.
9. Enter the **Base File Name** to save data under.
10. Select an ROI with the **"Draw ROI"** tool to monitor the temperature response of a region.

11. Press **"Start."** The software automatically steps through the thermal transient and shuts the device voltage off when finished; a thermal image is averaged and saved every 5 s in this example (255 s total for 51 data points ≈ 4 minutes 15 seconds).
12. Once the measurement finishes, exit and open the saved data in **SanjANALYZER**.

The transient response of an ROI can be monitored live in the lower-left **"Region Mean Graph"** tab by selecting a region with the Draw ROI tool. In the source's worked example, a small 5 µm Gold heater responds very quickly, reaching thermal equilibrium within a few microseconds due to its small thermal mass.

Reference — Timing Control: DUT pulse width, LED width, and acquisition period are set in this column. Acquisition period should be longer than DUT pulse width, which should be longer than LED width. Click **"Update Timing"** after changing any of these values.

Revision #1
Created 2026-08-26 18:17:27 UTC by Accounts
Updated 2026-08-26 18:17:27 UTC by Accounts