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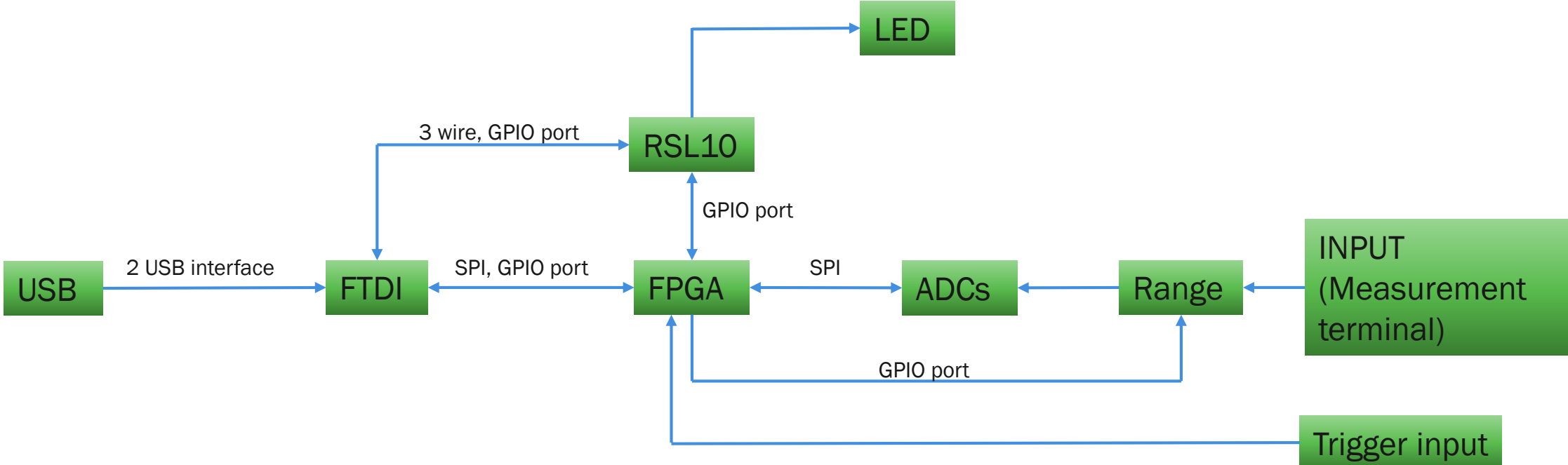
SECO-ULP-RANGER-GEVB
**Low power measurement tool with adjustable
voltage source**

Maros Duratny

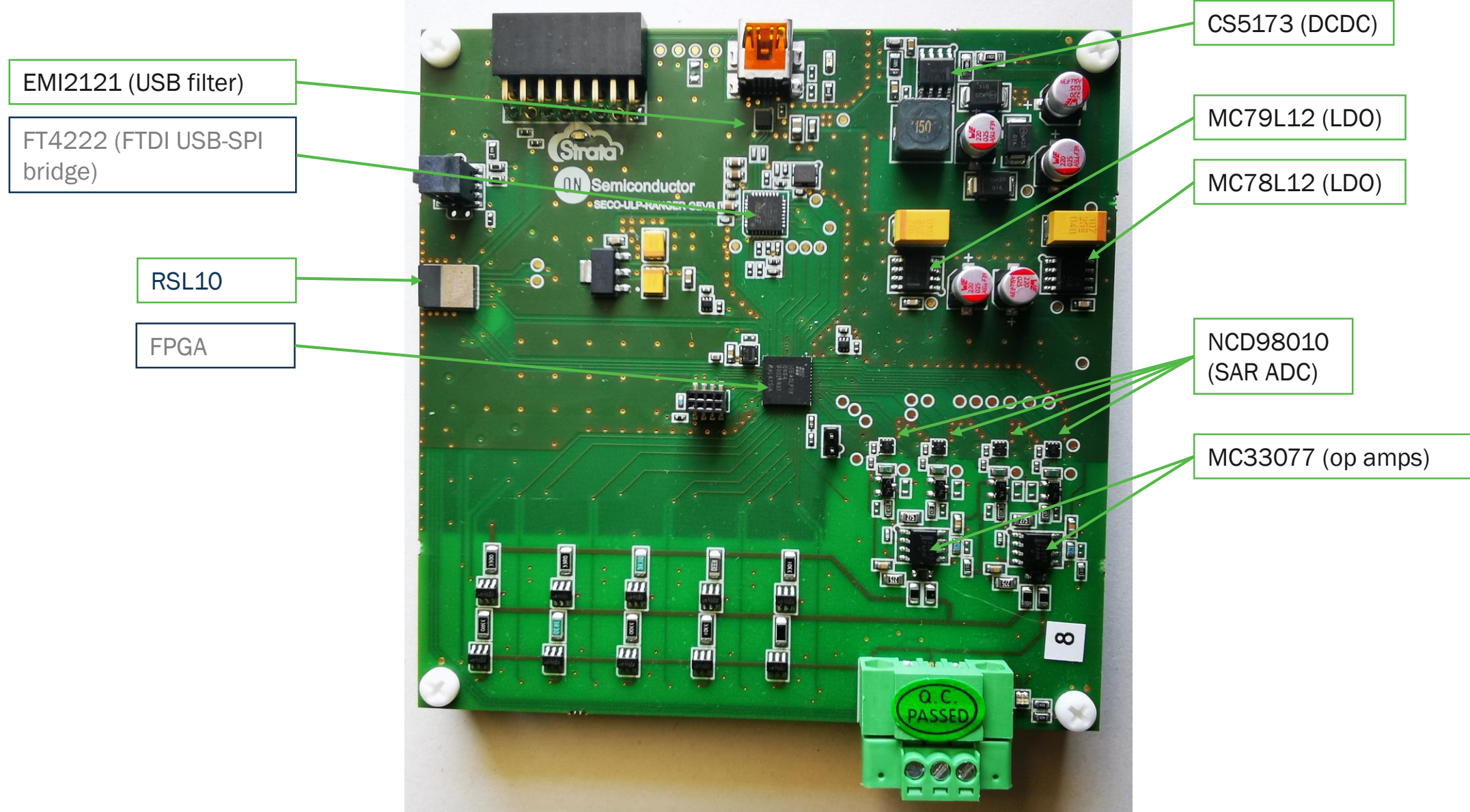
Public Information



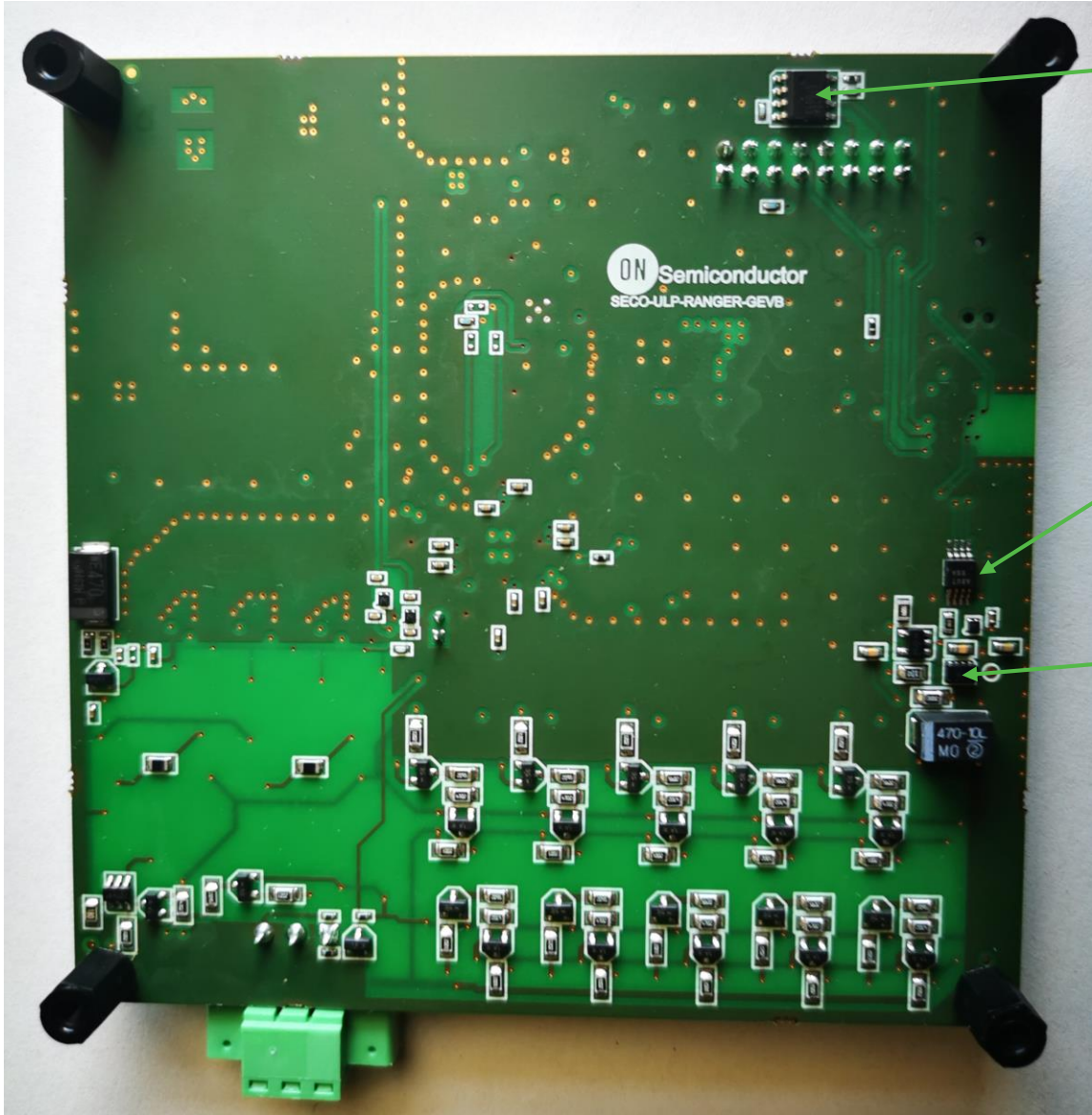
Functional diagram



DPS - Top view



DPS – Bottom view



CAT24C512 (EEPROM)

CAT5140 (Dig. Potentiometer)

NSS12601 (power BJT - regulation)



HW features

Power supply from 0V to 3,6V (minimal step 0.01V)

Manual/Automatic scaling of the current range

Dynamic and static current measurements

Adjustable Sampling rate: 1kS/s - 1MS/s

Static current measurement ranges: 1 μ A to 100mA

Adjustable trigger (1/0) to start the measurement

USB Type-A to Mini-B cable

SW features

Windows® OS (7,8,10)

5 different predefined options for changing the supply voltage

Possibility of automatic name for files during upload

Possibility to set sample rate and recording time before recording

Display of the current measured value

The ability to scale and reduce the chart using the mouse

Possibility to save the waveform as an image

ULP Ranger SW

The screenshot shows the ULP-Ranger software interface with several annotated components:

- Tools**
 - Power supply**
 - Voltage: 1.20 V (with ON/OFF button)
 - Predefined voltage: Radio buttons for 1.2V, 1.5V, 1.8V, 2.5V, and 3.3V.
 - Current range**
 - Automatic set range: 'Auto' button.
 - Manual set range: Radio buttons for 100mA, 10mA, 1mA, 100uA, 10uA, and 1uA.
- Record**
 - Path: D:\XXX\xxxx\Desktop\ (with Browse button)
 - File: aaaa_#### (with Format button)
 - Length (s): 2,000
 - Sample rate: 1 Msp/s
 - File Index (#): 1
 - Buttons: Capture, raw (checkbox), View file
- Measure**
 - actual

Annotations with arrows point to: 'Predefined voltage', 'Automatic set range', 'Manual set range', 'Set file attributes' (pointing to Path and File), 'Record settings' (pointing to Length and Sample rate), and 'Actual current' (pointing to the 'actual' label).

Status: Connected | ULP-Ranger v1



ULP Ranger SW – slow measurement

The screenshot shows the ULP-Ranger software interface. On the left, the 'Tools' panel contains the following settings:

- Power supply Voltage:** 1.80 V (with an ON/OFF button)
- Current range:** 10mA (selected), with other options at 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, 100mA, 1mA, 100uA, 10uA, and 1uA.
- Record Path:** D:\XXX\xxx\Desktop\
- File:** aaaa_####
- Length (s):** 2,000
- Sample rate:** 1 Msps
- File Index (#):** 1
- Buttons:** Capture, raw, View file

The main graph displays current in mA on the y-axis (0 to 10) against time in seconds on the x-axis (117.9 to 217.9). A blue line shows a stable current measurement around 0.91 mA. The status bar at the bottom indicates 'Status: Connected |' and 'ULP-Ranger v1 ..'.

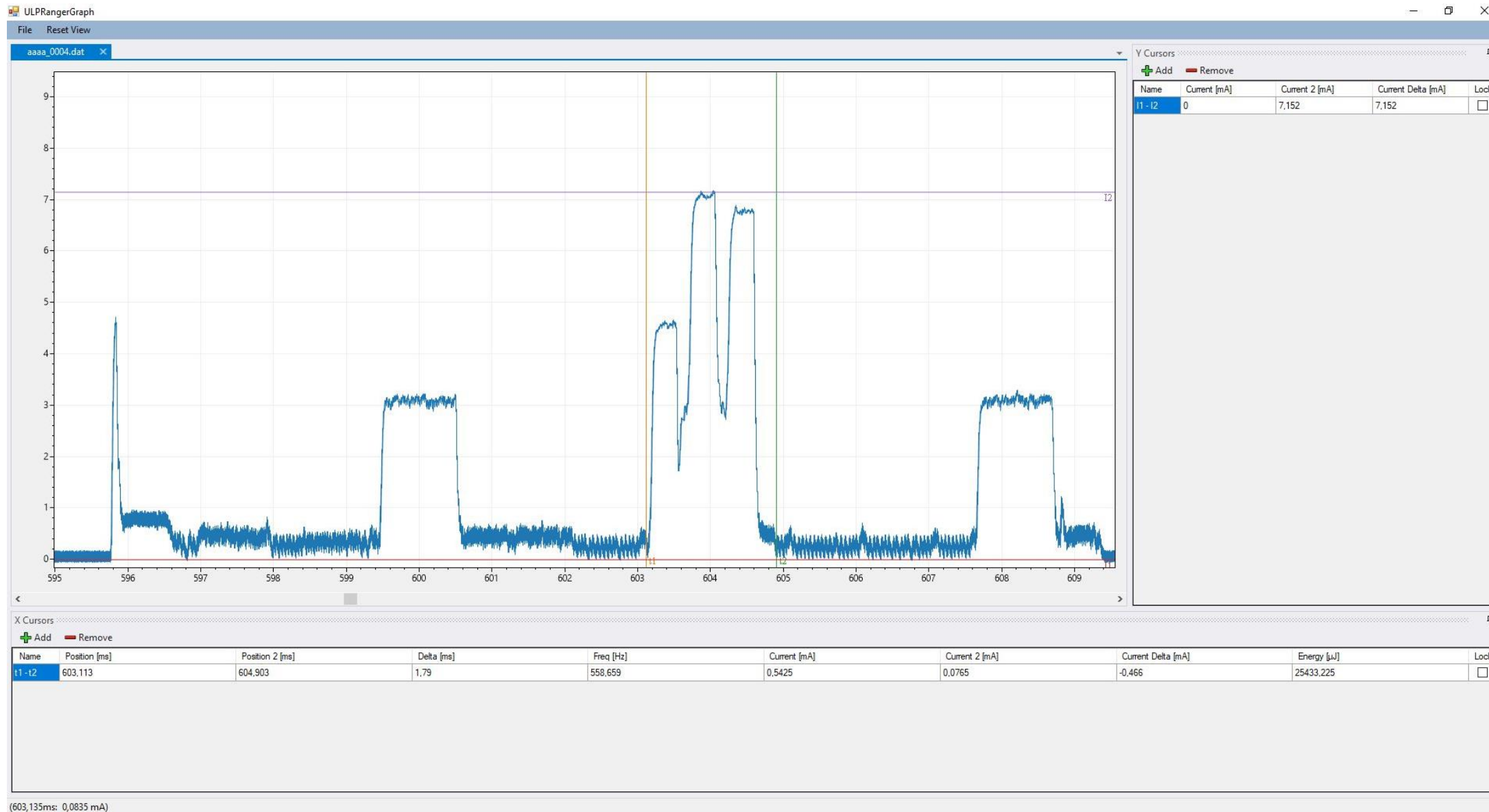


ULP Ranger SW – set file

The screenshot shows the ULP-Ranger software interface. On the left, there are control panels for 'Tools', 'Record', and 'Measure'. The 'Tools' panel includes a 'Power supply Voltage' section with a dropdown set to 1.80 V and an 'ON/OFF' button, and a 'Current range' section with radio buttons for 100mA, 10mA (selected), 1mA, 100uA, 10uA, and 1uA, along with an 'Auto' button. The 'Record' panel shows a file path 'D:\XXX\xxxx\Desktop\' and a file name 'aaaa_####', with a 'Form' button. The 'Measure' panel displays 'actual 0,88 mA (144)'. A graph on the right plots current in mA on the y-axis (0 to 10) against time in seconds on the x-axis (348.9 to 428.9). A blue line shows a noisy signal around 0.88 mA. A green box labeled 'Index options' points to a dropdown menu with the following options: '# index (1,... 10,...)', '### index (0001,...)', '[date] dd mm yyyy', '[time] hh:mm:ss', '[dd] day', '[hh] hour', '[mm] minute', '[ss] second', and '[ms] millisecond'. The status bar at the bottom indicates 'Status: Connected | ULP-Ranger v1'.



The waveform display – manual range measurement (RSL10)



(603,135ms: 0,0835 mA)

