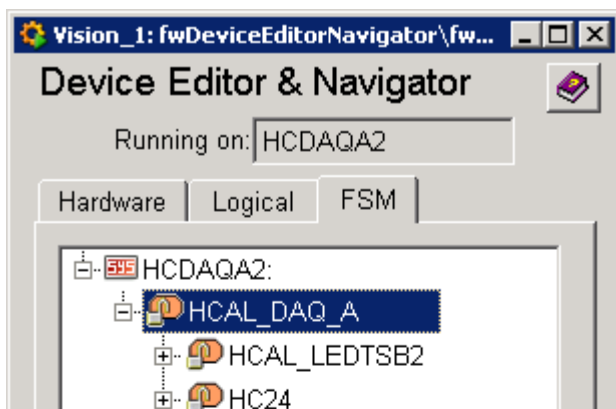


ECAL/HCAL Time Settings

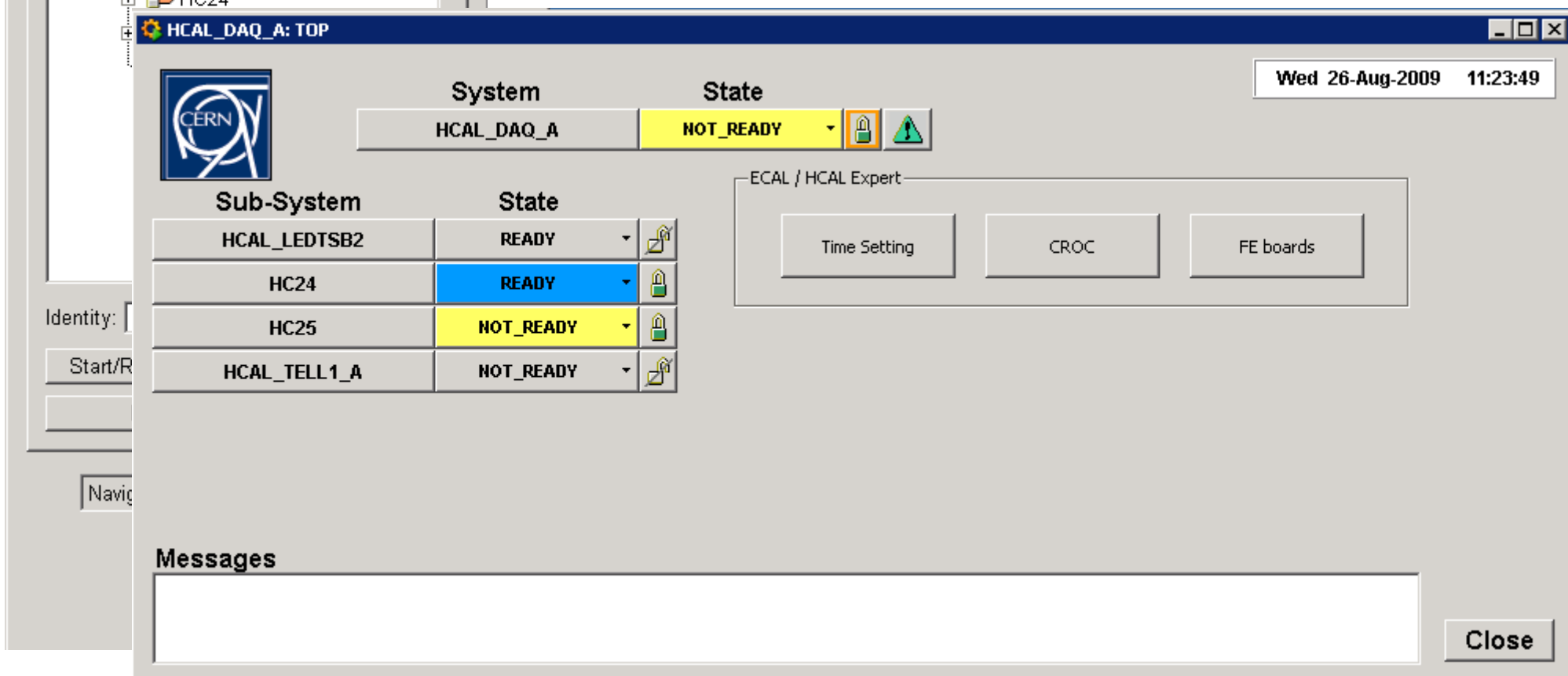
Tutorial

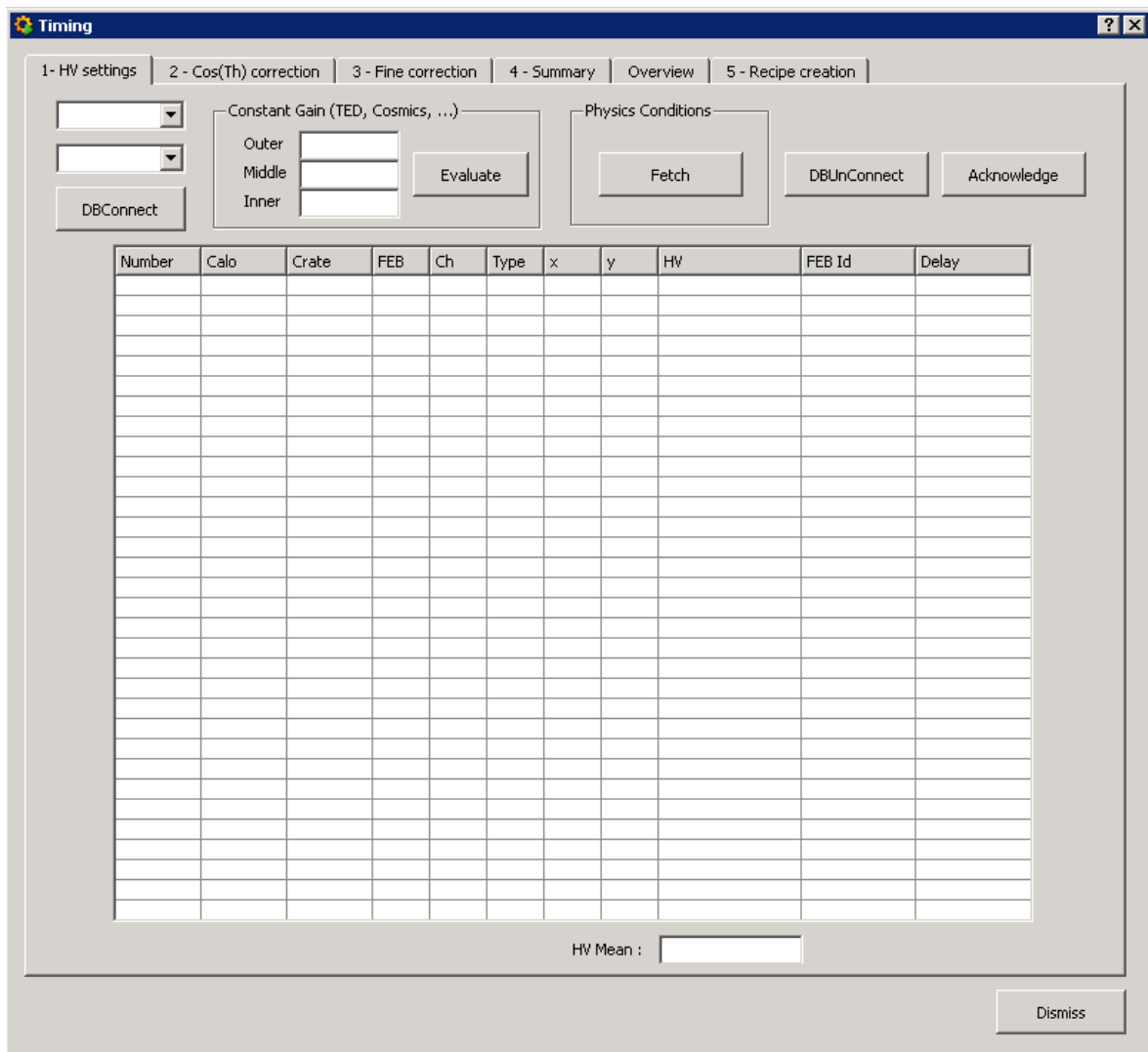
Frédéric Machefert

The « Expert » panels



- I replaced the previous panel to produce the time recipe by a new panel with three « expert » buttons
 - Time Settings, CROC and FEB
 - This configuration should be reviewed
 - Too easy to reach the expert panels ?
 - I needed an entry point for the new time setting panel...





The screenshot shows the 'Timing' software window with the following components:

- Tabbed Interface:** 1 - HV settings (selected), 2 - Cos(Th) correction, 3 - Fine correction, 4 - Summary, Overview, 5 - Recipe creation.
- Left Panel:** Two dropdown menus and a 'DBConnect' button.
- Constant Gain (TED, Cosmics, ...):** Input fields for 'Outer', 'Middle', and 'Inner' gain, with an 'Evaluate' button.
- Physics Conditions:** A 'Fetch' button.
- Buttons:** 'DBUnConnect' and 'Acknowledge'.
- Table:** A large table with columns: Number, Calo, Crate, FEB, Ch, Type, x, y, HV, FEB Id, Delay.
- Bottom Panel:** 'HV Mean :' label with an input field and a 'Dismiss' button.

- Purpose is to produce the time setting correction in a transparent way from the calo database information
 - Cell positions
 - Cell connections to the FEB
 - Cell HV(gain)
- Several tabs to
 - Fetch cell data from the CaloDB
 - Evaluate HV settings
 - Perform cos(θ) correction
 - Add fine tunings
 - Sum-up all the corrections
 - Add a global offset
 - Sum-up corrections
 - Overview (plots)
 - Create final recipes

(1) Connect to the DB

(2) Select the detectors you may get data for (FSM Node) (« middle » for ECAL only)

(3A) Fill in the Gains required (Cosmics, TED, ...) and evaluate the HV from the DB data → table gets filled

Or (3B) Get the data for physics conditions from the DB → table gets filled

Un-connecting from the database is done automatically when closing the panel (no arm in doing it twice!)

(4) You HAVE to acknowledge the table before going to the next tab

The screenshot shows the 'Timing' software interface with the following components:

- Navigation Tabs:** 1- HV settings, 2- Cos(Th) correction, 3- Fine correction, 4- Summary, Overview, 5- Recipe creation.
- Controls:**
 - Detector selection: HCAL (dropdown), A (dropdown).
 - Gain settings: Outer (0.0), Middle (0.0), Inner (0.0).
 - Buttons: DBConnect, Evaluate, Fetch, DBUnConnect, Acknowledge.
- Data Table:**

| Number | Calo | Crate | FEB | Ch | Type | x | y | HV | FEB Id | Delay |
|--------|---------|-------|-----|----|------|----|----|----------|-----------|-------|
| 712 | HCDAQA2 | 25 | 12 | 0 | O | 24 | 25 | 1.330752 | HC25FEB12 | -0.8 |
| 713 | HCDAQA2 | 25 | 12 | 1 | O | 24 | 26 | 1.386066 | HC25FEB12 | -1.2 |
| 714 | HCDAQA2 | 25 | 12 | 2 | O | 24 | 27 | 1.271212 | HC25FEB12 | -0.4 |
| 715 | HCDAQA2 | 25 | 12 | 3 | O | 24 | 28 | 1.408985 | HC25FEB12 | -1.3 |
| 716 | HCDAQA2 | 25 | 12 | 4 | O | 25 | 25 | 1.152054 | HC25FEB12 | 0.4 |
| 717 | HCDAQA2 | 25 | 12 | 5 | O | 25 | 26 | 1.341812 | HC25FEB12 | -0.9 |
| 718 | HCDAQA2 | 25 | 12 | 6 | O | 25 | 27 | 1.325090 | HC25FEB12 | -0.7 |
| 719 | HCDAQA2 | 25 | 12 | 7 | O | 25 | 28 | 1.420975 | HC25FEB12 | -1.4 |
| 720 | HCDAQA2 | 25 | 12 | 8 | O | 26 | 25 | 1.425202 | HC25FEB12 | -1.4 |
| 721 | HCDAQA2 | 25 | 12 | 9 | O | 26 | 26 | 1.202898 | HC25FEB12 | 0.1 |
| 722 | HCDAQA2 | 25 | 12 | 10 | O | 26 | 27 | 1.410670 | HC25FEB12 | -1.3 |
| 723 | HCDAQA2 | 25 | 12 | 11 | O | 26 | 28 | 1.272325 | HC25FEB12 | -0.4 |
| 724 | HCDAQA2 | 25 | 12 | 12 | O | 27 | 25 | 1.348430 | HC25FEB12 | -0.9 |
| 725 | HCDAQA2 | 25 | 12 | 13 | O | 27 | 26 | 1.465229 | HC25FEB12 | -1.7 |
| 726 | HCDAQA2 | 25 | 12 | 14 | O | 27 | 27 | 1.455331 | HC25FEB12 | -1.6 |
| 727 | HCDAQA2 | 25 | 12 | 15 | O | 27 | 28 | 1.293330 | HC25FEB12 | -0.5 |
| 728 | HCDAQA2 | 25 | 12 | 16 | O | 28 | 25 | 1.498351 | HC25FEB12 | -1.9 |
| 729 | HCDAQA2 | 25 | 12 | 17 | O | 28 | 26 | 1.526933 | HC25FEB12 | -2.1 |
| 730 | HCDAQA2 | 25 | 12 | 18 | O | 28 | 27 | 1.403287 | HC25FEB12 | -1.3 |
| 731 | HCDAQA2 | 25 | 12 | 19 | O | 28 | 28 | 1.398337 | HC25FEB12 | -1.2 |
| 732 | HCDAQA2 | 25 | 12 | 20 | O | 29 | 25 | 1.162036 | HC25FEB12 | 0.4 |
| 733 | HCDAQA2 | 25 | 12 | 21 | O | 29 | 26 | 1.417453 | HC25FEB12 | -1.4 |
| 734 | HCDAQA2 | 25 | 12 | 22 | O | 29 | 27 | 1.363154 | HC25FEB12 | -1.0 |
| 735 | HCDAQA2 | 25 | 12 | 23 | O | 29 | 28 | 1.480753 | HC25FEB12 | -1.8 |
| 736 | HCDAQA2 | 25 | 12 | 24 | O | 30 | 25 | 1.386631 | HC25FEB12 | -1.1 |
| 737 | HCDAQA2 | 25 | 12 | 25 | O | 30 | 26 | 1.398972 | HC25FEB12 | -1.2 |
| 738 | HCDAQA2 | 25 | 12 | 26 | O | 30 | 27 | 1.452018 | HC25FEB12 | -1.6 |
| 739 | HCDAQA2 | 25 | 12 | 27 | O | 30 | 28 | 1.443271 | HC25FEB12 | -1.5 |
| 740 | HCDAQA2 | 25 | 12 | 28 | O | 31 | 25 | 1.336609 | HC25FEB12 | -0.8 |
| 741 | HCDAQA2 | 25 | 12 | 29 | O | 31 | 26 | 1.506334 | HC25FEB12 | -2.0 |
| 742 | HCDAQA2 | 25 | 12 | 30 | O | 31 | 27 | 1.436817 | HC25FEB12 | -1.5 |
- Summary:** HV Mean : 1.215135
- Buttons:** Dismiss

Timing

1- HV settings 2 - Cos(θ) correction 3 - Fine correction 4 - Summary Overview 5 - Recipe creation

Fetch ☒ Correction ☐ No Correction Evaluate Acknowledge

| Number | Calo | Crate | FEB | Ch | Type | x | y | FEB Id | Delay |
|--------|---------|-------|-----|----|------|----|----|-----------|-------|
| 711 | HCDAQA2 | 25 | 11 | 31 | 0 | 31 | 24 | HC25FEB11 | |
| 712 | HCDAQA2 | 25 | 12 | 0 | 0 | 24 | 25 | HC25FEB12 | |
| 713 | HCDAQA2 | 25 | 12 | 1 | 0 | 24 | 26 | HC25FEB12 | |
| 714 | HCDAQA2 | 25 | 12 | 2 | 0 | 24 | 27 | HC25FEB12 | |
| 715 | HCDAQA2 | 25 | 12 | 3 | 0 | 24 | 28 | HC25FEB12 | |
| 716 | HCDAQA2 | 25 | 12 | 4 | 0 | 25 | 25 | HC25FEB12 | |
| 717 | HCDAQA2 | 25 | 12 | 5 | 0 | 25 | 26 | HC25FEB12 | |
| 718 | HCDAQA2 | 25 | 12 | 6 | 0 | 25 | 27 | HC25FEB12 | |
| 719 | HCDAQA2 | 25 | 12 | 7 | 0 | 25 | 28 | HC25FEB12 | |
| 720 | HCDAQA2 | 25 | 12 | 8 | 0 | 26 | 25 | HC25FEB12 | |
| 721 | HCDAQA2 | 25 | 12 | 9 | 0 | 26 | 26 | HC25FEB12 | |
| 722 | HCDAQA2 | 25 | 12 | 10 | 0 | 26 | 27 | HC25FEB12 | |
| 723 | HCDAQA2 | 25 | 12 | 11 | 0 | 26 | 28 | HC25FEB12 | |
| 724 | HCDAQA2 | 25 | 12 | 12 | 0 | 27 | 25 | HC25FEB12 | |
| 725 | HCDAQA2 | 25 | 12 | 13 | 0 | 27 | 26 | HC25FEB12 | |
| 726 | HCDAQA2 | 25 | 12 | 14 | 0 | 27 | 27 | HC25FEB12 | |
| 727 | HCDAQA2 | 25 | 12 | 15 | 0 | 27 | 28 | HC25FEB12 | |
| 728 | HCDAQA2 | 25 | 12 | 16 | 0 | 28 | 25 | HC25FEB12 | |
| 729 | HCDAQA2 | 25 | 12 | 17 | 0 | 28 | 26 | HC25FEB12 | |
| 730 | HCDAQA2 | 25 | 12 | 18 | 0 | 28 | 27 | HC25FEB12 | |
| 731 | HCDAQA2 | 25 | 12 | 19 | 0 | 28 | 28 | HC25FEB12 | |
| 732 | HCDAQA2 | 25 | 12 | 20 | 0 | 29 | 25 | HC25FEB12 | |
| 733 | HCDAQA2 | 25 | 12 | 21 | 0 | 29 | 26 | HC25FEB12 | |
| 734 | HCDAQA2 | 25 | 12 | 22 | 0 | 29 | 27 | HC25FEB12 | |
| 735 | HCDAQA2 | 25 | 12 | 23 | 0 | 29 | 28 | HC25FEB12 | |
| 736 | HCDAQA2 | 25 | 12 | 24 | 0 | 30 | 25 | HC25FEB12 | |
| 737 | HCDAQA2 | 25 | 12 | 25 | 0 | 30 | 26 | HC25FEB12 | |
| 738 | HCDAQA2 | 25 | 12 | 26 | 0 | 30 | 27 | HC25FEB12 | |
| 739 | HCDAQA2 | 25 | 12 | 27 | 0 | 30 | 28 | HC25FEB12 | |
| 740 | HCDAQA2 | 25 | 12 | 28 | 0 | 31 | 25 | HC25FEB12 | |
| 741 | HCDAQA2 | 25 | 12 | 29 | 0 | 31 | 26 | HC25FEB12 | |
| 742 | HCDAQA2 | 25 | 12 | 30 | 0 | 31 | 27 | HC25FEB12 | |
| 743 | HCDAQA2 | 25 | 12 | 31 | 0 | 31 | 28 | HC25FEB12 | |

Dismiss

- The DB information on the cell position is used to evaluate the $\cos(\theta)$ related delay
- You need first to « Fetch » the data from the previous tab
 - The table gets filled except for the last column
- You may chose to apply (physics) or not (TED, Cosmics) the geometrical correction

Cos (θ) correction

- « Evaluate » fills the last columns
- You HAVE to acknowledge to store the data at this stage
- Notice that pin diodes are not in the list and are not managed by these panels

Timing

1 - HV settings 2 - Cos(Th) correction 3 - Fine correction 4 - Summary Overview 5 - Recipe creation

Fetch ☒ Correction ☐ No Correction Evaluate Acknowledge

| Number | Calo | Crate | FEB | Ch | Type | x | y | FEB Id | Delay |
|--------|---------|-------|-----|----|------|----|----|-----------|-------|
| 711 | HCDAQA2 | 25 | 11 | 31 | O | 31 | 24 | HC25FEB11 | 2.6 |
| 712 | HCDAQA2 | 25 | 12 | 0 | O | 24 | 25 | HC25FEB12 | 1.4 |
| 713 | HCDAQA2 | 25 | 12 | 1 | O | 24 | 26 | HC25FEB12 | 1.5 |
| 714 | HCDAQA2 | 25 | 12 | 2 | O | 24 | 27 | HC25FEB12 | 1.7 |
| 715 | HCDAQA2 | 25 | 12 | 3 | O | 24 | 28 | HC25FEB12 | 1.9 |
| 716 | HCDAQA2 | 25 | 12 | 4 | O | 25 | 25 | HC25FEB12 | 1.5 |
| 717 | HCDAQA2 | 25 | 12 | 5 | O | 25 | 26 | HC25FEB12 | 1.7 |
| 718 | HCDAQA2 | 25 | 12 | 6 | O | 25 | 27 | HC25FEB12 | 1.8 |
| 719 | HCDAQA2 | 25 | 12 | 7 | O | 25 | 28 | HC25FEB12 | 2.0 |
| 720 | HCDAQA2 | 25 | 12 | 8 | O | 26 | 25 | HC25FEB12 | 1.7 |
| 721 | HCDAQA2 | 25 | 12 | 9 | O | 26 | 26 | HC25FEB12 | 1.8 |
| 722 | HCDAQA2 | 25 | 12 | 10 | O | 26 | 27 | HC25FEB12 | 2.0 |
| 723 | HCDAQA2 | 25 | 12 | 11 | O | 26 | 28 | HC25FEB12 | 2.2 |
| 724 | HCDAQA2 | 25 | 12 | 12 | O | 27 | 25 | HC25FEB12 | 1.8 |
| 725 | HCDAQA2 | 25 | 12 | 13 | O | 27 | 26 | HC25FEB12 | 2.0 |
| 726 | HCDAQA2 | 25 | 12 | 14 | O | 27 | 27 | HC25FEB12 | 2.2 |
| 727 | HCDAQA2 | 25 | 12 | 15 | O | 27 | 28 | HC25FEB12 | 2.4 |
| 728 | HCDAQA2 | 25 | 12 | 16 | O | 28 | 25 | HC25FEB12 | 2.0 |
| 729 | HCDAQA2 | 25 | 12 | 17 | O | 28 | 26 | HC25FEB12 | 2.2 |
| 730 | HCDAQA2 | 25 | 12 | 18 | O | 28 | 27 | HC25FEB12 | 2.4 |
| 731 | HCDAQA2 | 25 | 12 | 19 | O | 28 | 28 | HC25FEB12 | 2.6 |
| 732 | HCDAQA2 | 25 | 12 | 20 | O | 29 | 25 | HC25FEB12 | 2.2 |
| 733 | HCDAQA2 | 25 | 12 | 21 | O | 29 | 26 | HC25FEB12 | 2.4 |
| 734 | HCDAQA2 | 25 | 12 | 22 | O | 29 | 27 | HC25FEB12 | 2.6 |
| 735 | HCDAQA2 | 25 | 12 | 23 | O | 29 | 28 | HC25FEB12 | 2.8 |
| 736 | HCDAQA2 | 25 | 12 | 24 | O | 30 | 25 | HC25FEB12 | 2.5 |
| 737 | HCDAQA2 | 25 | 12 | 25 | O | 30 | 26 | HC25FEB12 | 2.6 |
| 738 | HCDAQA2 | 25 | 12 | 26 | O | 30 | 27 | HC25FEB12 | 2.8 |
| 739 | HCDAQA2 | 25 | 12 | 27 | O | 30 | 28 | HC25FEB12 | 3.0 |
| 740 | HCDAQA2 | 25 | 12 | 28 | O | 31 | 25 | HC25FEB12 | 2.7 |
| 741 | HCDAQA2 | 25 | 12 | 29 | O | 31 | 26 | HC25FEB12 | 2.9 |
| 742 | HCDAQA2 | 25 | 12 | 30 | O | 31 | 27 | HC25FEB12 | 3.0 |
| 743 | HCDAQA2 | 25 | 12 | 31 | O | 31 | 28 | HC25FEB12 | 3.2 |

Dismiss

Timing

1- HV settings 2- Cos(Th) correction 3- Fine correction 4- Summary Overview 5- Recipe creation

Fetch Acknowledge

| Number | Calo | Crate | FEB | Ch | Type | FEB Id | Delay |
|--------|---------|-------|-----|----|------|-----------|-------|
| 711 | HCDAQA2 | 25 | 11 | 31 | O | HC25FEB11 | |
| 712 | HCDAQA2 | 25 | 12 | 0 | O | HC25FEB12 | |
| 713 | HCDAQA2 | 25 | 12 | 1 | O | HC25FEB12 | |
| 714 | HCDAQA2 | 25 | 12 | 2 | O | HC25FEB12 | |
| 715 | HCDAQA2 | 25 | 12 | 3 | O | HC25FEB12 | |
| 716 | HCDAQA2 | 25 | 12 | 4 | O | HC25FEB12 | |
| 717 | HCDAQA2 | 25 | 12 | 5 | O | HC25FEB12 | |
| 718 | HCDAQA2 | 25 | 12 | 6 | O | HC25FEB12 | |
| 719 | HCDAQA2 | 25 | 12 | 7 | O | HC25FEB12 | |
| 720 | HCDAQA2 | 25 | 12 | 8 | O | HC25FEB12 | |
| 721 | HCDAQA2 | 25 | 12 | 9 | O | HC25FEB12 | |
| 722 | HCDAQA2 | 25 | 12 | 10 | O | HC25FEB12 | |
| 723 | HCDAQA2 | 25 | 12 | 11 | O | HC25FEB12 | |
| 724 | HCDAQA2 | 25 | 12 | 12 | O | HC25FEB12 | |
| 725 | HCDAQA2 | 25 | 12 | 13 | O | HC25FEB12 | |
| 726 | HCDAQA2 | 25 | 12 | 14 | O | HC25FEB12 | |
| 727 | HCDAQA2 | 25 | 12 | 15 | O | HC25FEB12 | |
| 728 | HCDAQA2 | 25 | 12 | 16 | O | HC25FEB12 | |
| 729 | HCDAQA2 | 25 | 12 | 17 | O | HC25FEB12 | |
| 730 | HCDAQA2 | 25 | 12 | 18 | O | HC25FEB12 | |
| 731 | HCDAQA2 | 25 | 12 | 19 | O | HC25FEB12 | |
| 732 | HCDAQA2 | 25 | 12 | 20 | O | HC25FEB12 | |
| 733 | HCDAQA2 | 25 | 12 | 21 | O | HC25FEB12 | |
| 734 | HCDAQA2 | 25 | 12 | 22 | O | HC25FEB12 | |
| 735 | HCDAQA2 | 25 | 12 | 23 | O | HC25FEB12 | |
| 736 | HCDAQA2 | 25 | 12 | 24 | O | HC25FEB12 | |
| 737 | HCDAQA2 | 25 | 12 | 25 | O | HC25FEB12 | |
| 738 | HCDAQA2 | 25 | 12 | 26 | O | HC25FEB12 | |
| 739 | HCDAQA2 | 25 | 12 | 27 | O | HC25FEB12 | |
| 740 | HCDAQA2 | 25 | 12 | 28 | O | HC25FEB12 | |
| 741 | HCDAQA2 | 25 | 12 | 29 | O | HC25FEB12 | |
| 742 | HCDAQA2 | 25 | 12 | 30 | O | HC25FEB12 | |
| 743 | HCDAQA2 | 25 | 12 | 31 | O | HC25FEB12 | |

channels : matching channels

Dismiss

- As usual, you need to « Fetch » the data produced up to this stage
 - The table gets filled except for the last column
- You may add some fine corrections (extracted from TED, physics runs)
 - Corrections are in a text file that may be loaded

- Text file format :

| | | | |
|----|---|-----|-----|
| 24 | 1 | 0 | 1.2 |
| 24 | 1 | 1 | 1.5 |
| 24 | 1 | 2 | 1.3 |
| 24 | 1 | 3 | 0.9 |
| 24 | 1 | 4 | 0.9 |
| 24 | 1 | 5 | 1.5 |
| 24 | 1 | 6 | 1.2 |
| 24 | 1 | ... | ... |

Crate Number

FEB Number

Channel

Delay (ns)

Timing

1- HV settings | 2- Cos(Th) correction | 3 - Fine correction | 4 - Summary | Overview | 5 - Recipe creation

Fetch Acknowledge

| Number | Calo | Crate | FEB | Ch | Type | FEB Id | Delay |
|--------|--------|-------|-----|----|------|----------|-------|
| 3 | HCDQA2 | 24 | 1 | 3 | I | HC24FEB1 | 3.1 |
| 4 | HCDQA2 | 24 | 1 | 4 | I | HC24FEB1 | 3.2 |
| 5 | HCDQA2 | 24 | 1 | 5 | I | HC24FEB1 | 3.5 |
| 6 | HCDQA2 | 24 | 1 | 6 | I | HC24FEB1 | 1.2 |
| 7 | HCDQA2 | 24 | 1 | 7 | I | HC24FEB1 | 1.7 |
| 8 | HCDQA2 | 24 | 1 | 8 | I | HC24FEB1 | 1.2 |
| 9 | HCDQA2 | 24 | 1 | 9 | I | HC24FEB1 | 1.3 |
| 10 | HCDQA2 | 24 | 1 | 10 | I | HC24FEB1 | 1.1 |
| 11 | HCDQA2 | 24 | 1 | 11 | I | HC24FEB1 | 0.0 |
| 12 | HCDQA2 | 24 | 1 | 12 | I | HC24FEB1 | 0.0 |
| 13 | HCDQA2 | 24 | 1 | 13 | I | HC24FEB1 | 0.0 |
| 14 | HCDQA2 | 24 | 1 | 14 | I | HC24FEB1 | 0.0 |
| 15 | HCDQA2 | 24 | 1 | 15 | I | HC24FEB1 | 0.0 |
| 16 | HCDQA2 | 24 | 1 | 16 | I | HC24FEB1 | 0.0 |
| 17 | HCDQA2 | 24 | 1 | 17 | I | HC24FEB1 | 0.0 |
| 18 | HCDQA2 | 24 | 1 | 18 | I | HC24FEB1 | 0.0 |
| 19 | HCDQA2 | 24 | 1 | 19 | I | HC24FEB1 | 0.0 |
| 20 | HCDQA2 | 24 | 1 | 20 | I | HC24FEB1 | 0.0 |
| 21 | HCDQA2 | 24 | 1 | 21 | I | HC24FEB1 | 0.0 |
| 22 | HCDQA2 | 24 | 1 | 22 | I | HC24FEB1 | 0.0 |
| 23 | HCDQA2 | 24 | 1 | 23 | I | HC24FEB1 | 0.0 |
| 24 | HCDQA2 | 24 | 1 | 24 | I | HC24FEB1 | 0.0 |
| 25 | HCDQA2 | 24 | 1 | 25 | I | HC24FEB1 | 0.0 |
| 26 | HCDQA2 | 24 | 1 | 26 | I | HC24FEB1 | 0.0 |
| 27 | HCDQA2 | 24 | 1 | 27 | I | HC24FEB1 | 0.0 |
| 28 | HCDQA2 | 24 | 1 | 28 | I | HC24FEB1 | 0.0 |
| 29 | HCDQA2 | 24 | 1 | 29 | I | HC24FEB1 | 0.0 |
| 30 | HCDQA2 | 24 | 1 | 30 | I | HC24FEB1 | 0.0 |
| 31 | HCDQA2 | 24 | 1 | 31 | I | HC24FEB1 | 0.0 |
| 32 | HCDQA2 | 24 | 2 | 0 | I | HC24FEB2 | |
| 33 | HCDQA2 | 24 | 2 | 1 | I | HC24FEB2 | |
| 34 | HCDQA2 | 24 | 2 | 2 | I | HC24FEB2 | |
| 35 | HCDQA2 | 24 | 2 | 3 | I | HC24FEB2 | |

channels : matching channels

Dismiss

- Matching (table/file) cells get an extra delay in the last column
- The number of cells in the file and matching cells is given at the bottom
- To go to the next tab, you **HAVE** to acknowledge the corrections

Timing

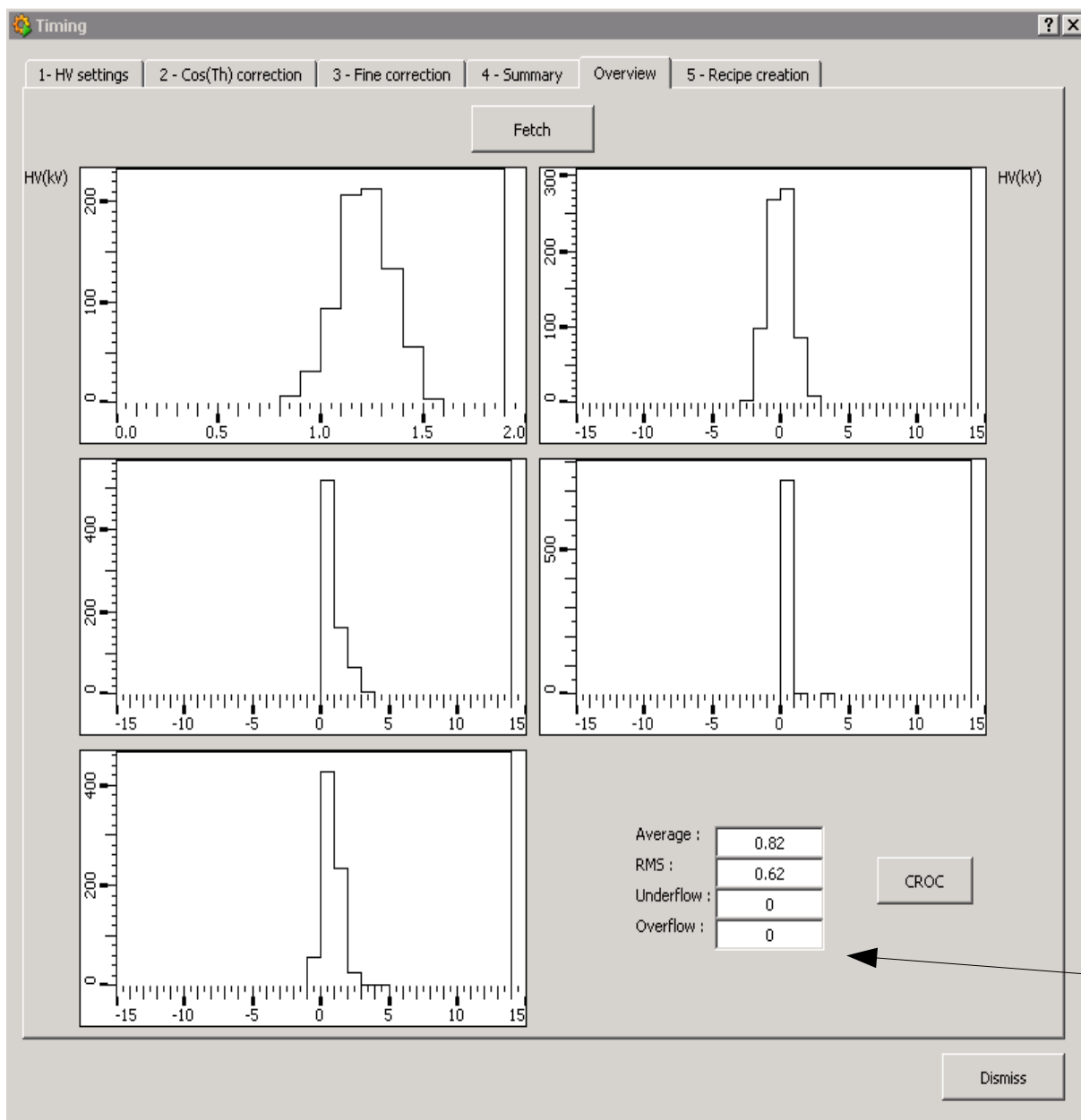
1 - HV settings | 2 - Cos(Th) correction | 3 - Fine correction | 4 - Summary | Overview | 5 - Recipe creation

Fetch Offset : 0.00 Evaluate Acknowledge

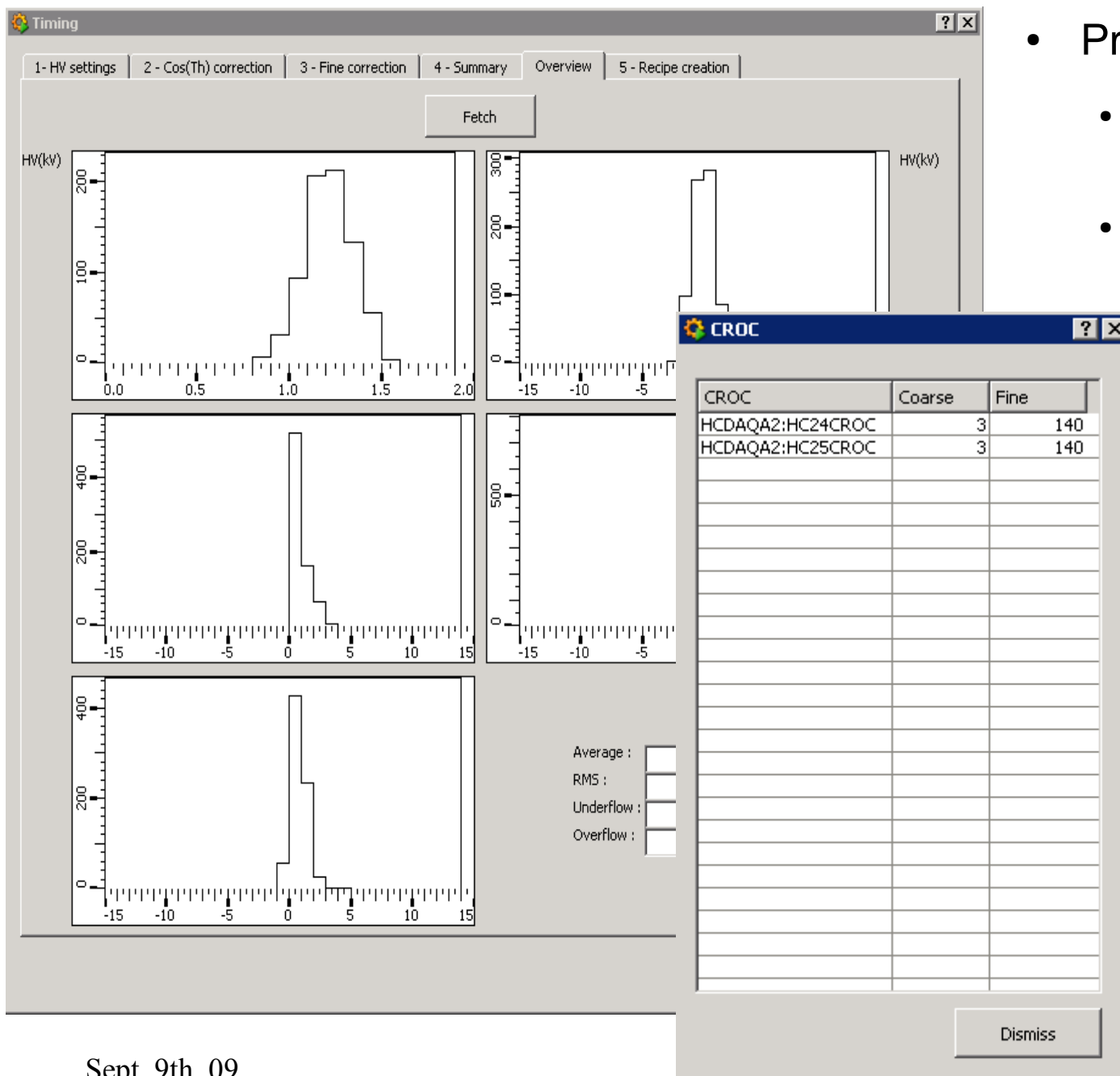
| Number | Calo | Crate | FEB | Ch | Type | FEB Id | HV | CosTh | Fine | Final |
|--------|---------|-------|-----|----|------|-----------|------|-------|------|-------|
| 711 | HCDAQA2 | 25 | 11 | 31 | O | HC25FEB11 | -0.9 | 2.6 | 0.0 | 1.6 |
| 712 | HCDAQA2 | 25 | 12 | 0 | O | HC25FEB12 | -0.8 | 1.4 | 0.0 | 0.6 |
| 713 | HCDAQA2 | 25 | 12 | 1 | O | HC25FEB12 | -1.2 | 1.5 | 0.0 | 0.4 |
| 714 | HCDAQA2 | 25 | 12 | 2 | O | HC25FEB12 | -0.4 | 1.7 | 0.0 | 1.3 |
| 715 | HCDAQA2 | 25 | 12 | 3 | O | HC25FEB12 | -1.3 | 1.9 | 0.0 | 0.6 |
| 716 | HCDAQA2 | 25 | 12 | 4 | O | HC25FEB12 | 0.4 | 1.5 | 0.0 | 1.9 |
| 717 | HCDAQA2 | 25 | 12 | 5 | O | HC25FEB12 | -0.9 | 1.7 | 0.0 | 0.8 |
| 718 | HCDAQA2 | 25 | 12 | 6 | O | HC25FEB12 | -0.7 | 1.8 | 0.0 | 1.1 |
| 719 | HCDAQA2 | 25 | 12 | 7 | O | HC25FEB12 | -1.4 | 2.0 | 0.0 | 0.6 |
| 720 | HCDAQA2 | 25 | 12 | 8 | O | HC25FEB12 | -1.4 | 1.7 | 0.0 | 0.2 |
| 721 | HCDAQA2 | 25 | 12 | 9 | O | HC25FEB12 | 0.1 | 1.8 | 0.0 | 1.9 |
| 722 | HCDAQA2 | 25 | 12 | 10 | O | HC25FEB12 | -1.3 | 2.0 | 0.0 | 0.7 |
| 723 | HCDAQA2 | 25 | 12 | 11 | O | HC25FEB12 | -0.4 | 2.2 | 0.0 | 1.8 |
| 724 | HCDAQA2 | 25 | 12 | 12 | O | HC25FEB12 | -0.9 | 1.8 | 0.0 | 0.9 |
| 725 | HCDAQA2 | 25 | 12 | 13 | O | HC25FEB12 | -1.7 | 2.0 | 0.0 | 0.7 |
| 726 | HCDAQA2 | 25 | 12 | 14 | O | HC25FEB12 | -1.6 | 2.2 | 0.0 | 0.6 |
| 727 | HCDAQA2 | 25 | 12 | 15 | O | HC25FEB12 | -0.5 | 2.4 | 0.0 | 1.8 |
| 728 | HCDAQA2 | 25 | 12 | 16 | O | HC25FEB12 | -1.9 | 2.0 | 0.0 | 0.1 |
| 729 | HCDAQA2 | 25 | 12 | 17 | O | HC25FEB12 | -2.1 | 2.2 | 0.0 | 0.1 |
| 730 | HCDAQA2 | 25 | 12 | 18 | O | HC25FEB12 | -1.3 | 2.4 | 0.0 | 1.1 |
| 731 | HCDAQA2 | 25 | 12 | 19 | O | HC25FEB12 | -1.2 | 2.6 | 0.0 | 1.3 |
| 732 | HCDAQA2 | 25 | 12 | 20 | O | HC25FEB12 | 0.4 | 2.2 | 0.0 | 2.6 |
| 733 | HCDAQA2 | 25 | 12 | 21 | O | HC25FEB12 | -1.4 | 2.4 | 0.0 | 1.0 |
| 734 | HCDAQA2 | 25 | 12 | 22 | O | HC25FEB12 | -1.0 | 2.6 | 0.0 | 1.6 |
| 735 | HCDAQA2 | 25 | 12 | 23 | O | HC25FEB12 | -1.8 | 2.8 | 0.0 | 1.0 |
| 736 | HCDAQA2 | 25 | 12 | 24 | O | HC25FEB12 | -1.2 | 2.5 | 0.0 | 1.3 |
| 737 | HCDAQA2 | 25 | 12 | 25 | O | HC25FEB12 | -1.2 | 2.6 | 0.0 | 1.4 |
| 738 | HCDAQA2 | 25 | 12 | 26 | O | HC25FEB12 | -1.6 | 2.8 | 0.0 | 1.2 |
| 739 | HCDAQA2 | 25 | 12 | 27 | O | HC25FEB12 | -1.5 | 3.0 | 0.0 | 1.5 |
| 740 | HCDAQA2 | 25 | 12 | 28 | O | HC25FEB12 | -0.8 | 2.7 | 0.0 | 1.9 |
| 741 | HCDAQA2 | 25 | 12 | 29 | O | HC25FEB12 | -2.0 | 2.9 | 0.0 | 0.9 |
| 742 | HCDAQA2 | 25 | 12 | 30 | O | HC25FEB12 | -1.5 | 3.0 | 0.0 | 1.5 |
| 743 | HCDAQA2 | 25 | 12 | 31 | O | HC25FEB12 | -1.6 | 3.2 | 0.0 | 1.7 |

Dismiss

- Need first to fetch the previous timing data
- Possibility to add an overall offset
- Then pressing “Evaluate” fills the last column and lists the corrections for all the cells
- You **HAVE** to acknowledge those corrections before going to the next tab



- First you need to “Fetch” the data presently stored in PVSS
 - Plots may be drawn summarising the various corrections
 - HV
 - HV time corrections
 - Cos(q) delay
 - Fine corrections
 - Final correction
 - including offset
- what will eventually be put into the electronics
- Some information given on this last histogram



- Pressing “CROC”
 - Gives the present configuration of the CROC
 - List given for the CROC accessible by PVSS
 - Same FSM node

Timing

1 - HV settings | 2 - Cos(Th) correction | 3 - Fine correction | 4 - Summary | Overview | 5 - Recipe creation

Fetch

| Name | Crate | FEB | Channel | ADC Clock | Inv Clock |
|-----------|-------|-----|---------|-----------|--------------------------|
| HC25FEB10 | 25 | 10 | 13 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 14 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 15 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 16 | 0 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 17 | 0 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 18 | 0 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 19 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 20 | 0 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 21 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 22 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 23 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 24 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 25 | 2 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 26 | 2 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 27 | 0 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 28 | 2 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 29 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 30 | 1 | <input type="checkbox"/> |
| HC25FEB10 | 25 | 10 | 31 | 2 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 0 | 1 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 1 | 1 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 2 | 2 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 3 | 0 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 4 | 0 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 5 | 0 | <input type="checkbox"/> |
| HC25FEB11 | 25 | 11 | 6 | 0 | <input type="checkbox"/> |

Number of Boards
25

Action
Load Electronics

Full configurations saved
Please configure properly the
FEBs before creating recipes

OK

Dismiss

- The present configuration is kept but for the delay to make the new recipes
 - The other registers of the FEB need to be correctly set beforehand !
- If you "Fetch", the global timings are converted in integer and listed in the table
- Invert/Direct clock registers tuned automatically
- Two actions possible :
 - Only load the electronics
 - Load first with new time settings and create recipes
 - You have to give a name for the new recipes
- Creating the recipes takes time
 - Button changed for 'processing' until action is completed (please be patient !)

- It is possible to split a run in several sub-runs : “steps”
- After a certain number of events (imposed by the operator),
 - the run is paused
 - A specific configuration is requested
 - Most of the hardware
 - go directly into READY states when such a configuration is launched
 - this is the case at present for the XCAL FEB and CROC
 - So the “normal” configuration is not affected by such a “step”
 - A parameter is passed during that configuration : “STEP_NR”
 - This parameter can be used to tune the configuration for a specific step
 - Timing scan, threshold scan, ...
- Present users of the Step functionality : LED scans for the calorimeter

The screenshot displays the 'States and Actions' configuration window for a device of type 'HwTypeSPECSCROCDDefault'. The 'Simple Config' tab is active, showing a 'State List' with 'NOT_READY', 'UNKNOWN', 'CONFIGURING', 'READY', and 'RUNNING'. The 'Action List' includes 'Stop', 'Reset', and 'Step'. A 'config_device_actions' dialog is open, showing a list of actions: 'Configure', 'Load', 'Unload', 'Reset', and 'ResetCrate'. The 'Configure' action is selected, and a 'Set' field is visible with 'status' as the variable and '0' as the value.

The 'komplex - Script Editor (HCDAQ2 - HCDAQ2; #3)' window is also open, showing a script for the 'HwTypeSPECSCROCD' device. The script defines functions for 'CROC_Running', 'Reset', 'Recover', 'ResetCrate', and 'Step'.

```

17  if (CROC_Running(device)){
18      dpSet(device+".status",3);
19  }
20  else {
21      dpSet(device+".status",4);
22  }
23  }
24  if (command == "Reset"){
25      dpSet(device+".status",0);
26  }
27  if (command == "Stop"){
28      dpSet(device+".status",2);
29  }
30  if (command == "Recover"){
31      dpSet(device+".status",0);
32  }
33  if (command == "ResetCrate"){
34      CROC_CrateReset(device);
35      dpSet(device+".status",0);
36  }
37  if (command == "Step"){
38      string step_nr;
39      fwDU_getCommandParameter ( domain, device, "STEP_NR", step_nr);
40      DebugTN("CROC: Running Step function [" +step_nr+"]");
41      dpSet(device+".status",3);
42  }
43  }
    
```

At the bottom of the 'config_device_actions' dialog, there is a message: 'More Actions Exist... (Please use Edit Script directly)' and buttons for 'Generate Script (from screen)', 'Edit Script', and 'Close'.

LHCb: TOP HCDAQHVA01w

System LHCb **State** READY **Auto Pilot** OFF Tue 08-Sep-2009 10:29:06

Sub-System **State**

| | |
|----------------|---------------|
| DCS | READY |
| DAI | READY |
| DAQ | READY |
| RunInfo | READY |
| INF | NOT_READY |
| TFC | READY |
| HLT | READY |
| Storage | READY |
| Monitoring | READY |
| Reconstruction | NOT_ALLOCATED |
| Calibration | NOT_READY |

Run Number: 56647 **Activity:** RICH1_COSMICS **Save**

Run Start Time: 07-Sep-2009 18:27:08 **Trigger Configuration:** PA accept=PVSS **Change**

Run Duration: 015:52:54 **Time Alignment:** ☒ TAE half window 7 ☒ L0 Gap

Nr. Events: 298 **Max Nr. Events:** ☐ Run limited to 0 Events

Nr. Steps Left: 0 **Automated Run with Steps:** ☐ Step Run with 0 Steps

L0 Rate: 0.00 Hz **HLT Rate:** 0.00 Hz **Dead Time:** 0.00 %

TFC Control **TELL1s** **LHCb Elog** **Data Destination:** Offline **Data Type:** TEST **Run DB**

File: /daqarea/lhcb/data/2009/RAW/FULL/LHCb/TEST/56647

Sub-Detectors:

| | | | | | | | | | |
|-------------|-----------|-----------|-------|-----------|-------|-------|-------|-------|------|
| TDET | VELOA | VELOC | TT | IT | OTA | OTC | RICH1 | RICH2 | PRS |
| DT_ALLOCATI | NOT_READY | NOT_READY | READY | NOT_READY | ERROR | ERROR | READY | READY | DEAD |

Trigger Components:

| | | | | | | | | |
|-----------|-----------|-----------|---------|-------|-----------|-----------|-----------|-----------|
| ECAL | HCAL | MUONA | MUONC | L0DU | TCALO | TMUA | TMUC | TPU |
| NOT_READY | NOT_READY | NOT_READY | UNKNOWN | READY | NOT_READY | NOT_READY | NOT_READY | NOT_READY |