ECALs monitoring in the DCS

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COMPASS weekly meeting, May 29th 2009

Request

Indirect monitoring in the DCS of the HV system of
- ECal1 (laser system): 1500 blocks
- ECal2 (LEDs): 3068 blocks

with alert handling and archiving

→ 2x the number of HV channels monitored in the DCS up to 2008 → Tests with real data needed

tbname tbname from th emapping file	xpos x coordinate from the mapping file	ypos y coordinate from the mapping file	runnr corresponding run number	spillnr	av_amplitude average LED amplitude in one run	nr_events Number of events used for amplitude average
EC02P1__	0	0	74071	2	662.918	328
EC02P1__	0	1	74071	2	803.863	328
EC02P1__	0	2	74071	2	974.159	328
EC02P1__	0	3	74071	2	1213.51	328
EC02P1__	0	4	74071	2	1050.97	329
EC02P1__	0	5	74071	2	2108.88	328
EC02P1__	0	6	74071	2	816.268	328
EC02P1__	0	7	74071	2	888.960	328

MySQL “runlb” database, table “ECAL_MON”
(filled by the online filter, see R. Konopka’s talk)

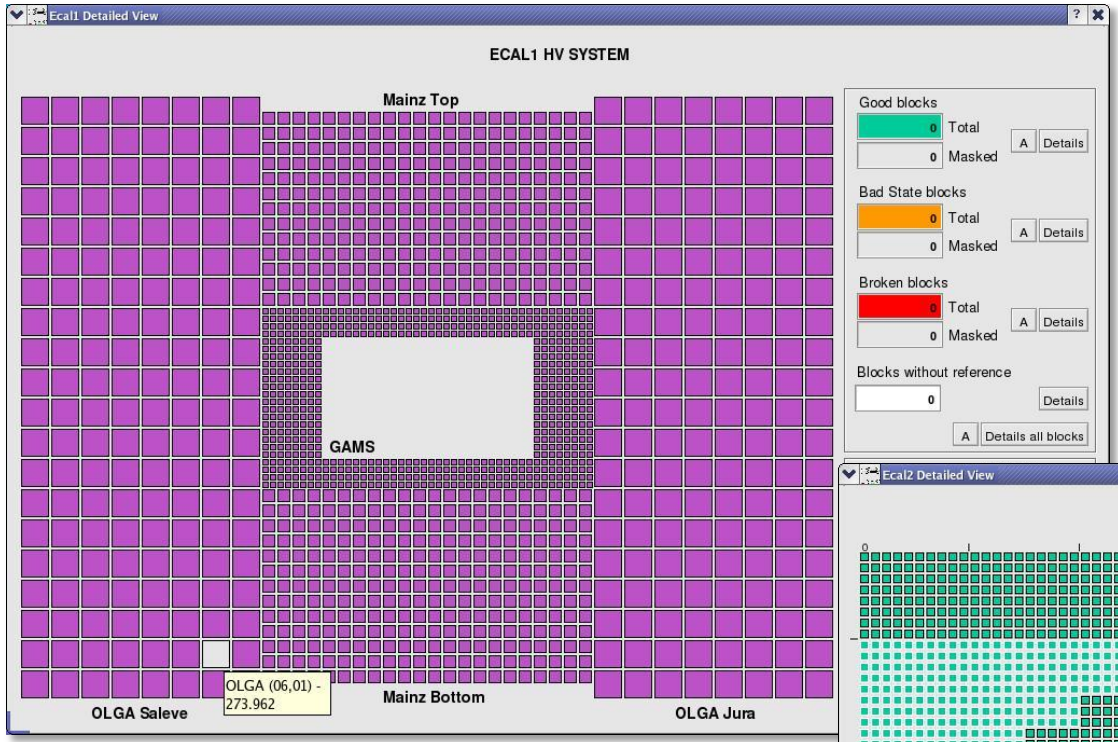
Readings:

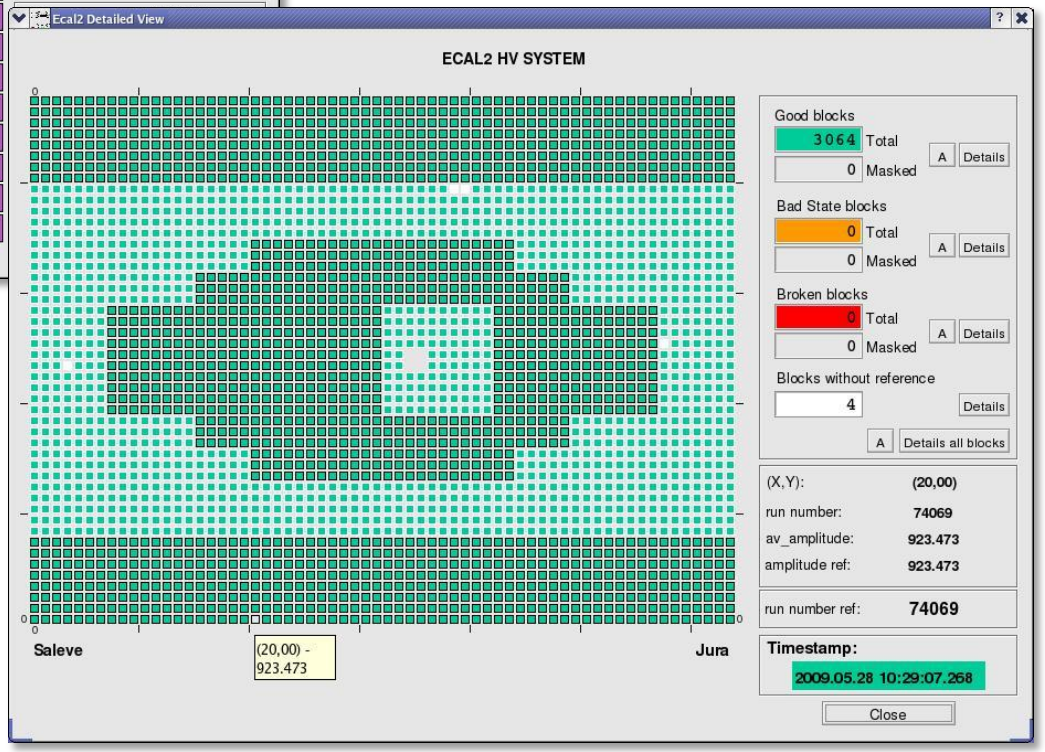
- Every **15 minutes** a query to the database compares, for each block:
  - Amplitude of last spill recorded
  - Amplitude of previous reading in the DCS

  If the difference is **>0**, the new value is sent to the DCS.

- **Every hour**, all blocks’ amplitudes are read and sent to the DCS.

Main panels





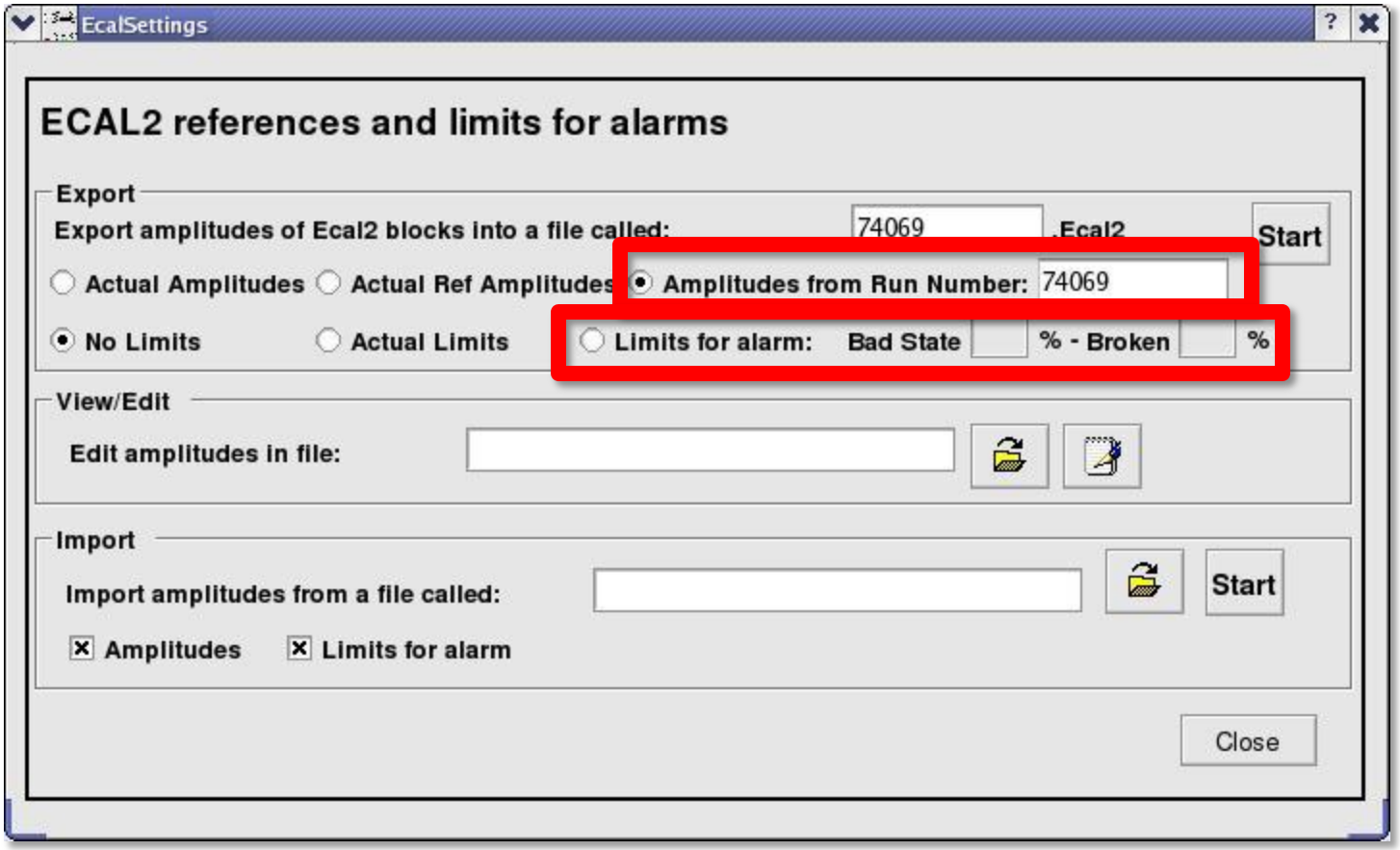
For each reading, a **comparison** is made w.r.t. a **reference value** (defined by experts).

Color code:

- **Good**: difference < **5%**
- **Bad state**: **5%** < difference < **20%**
- **Broken**: difference > **20%**
- Blocks without reference
- **Obsolete**: timestamp older than **1h**

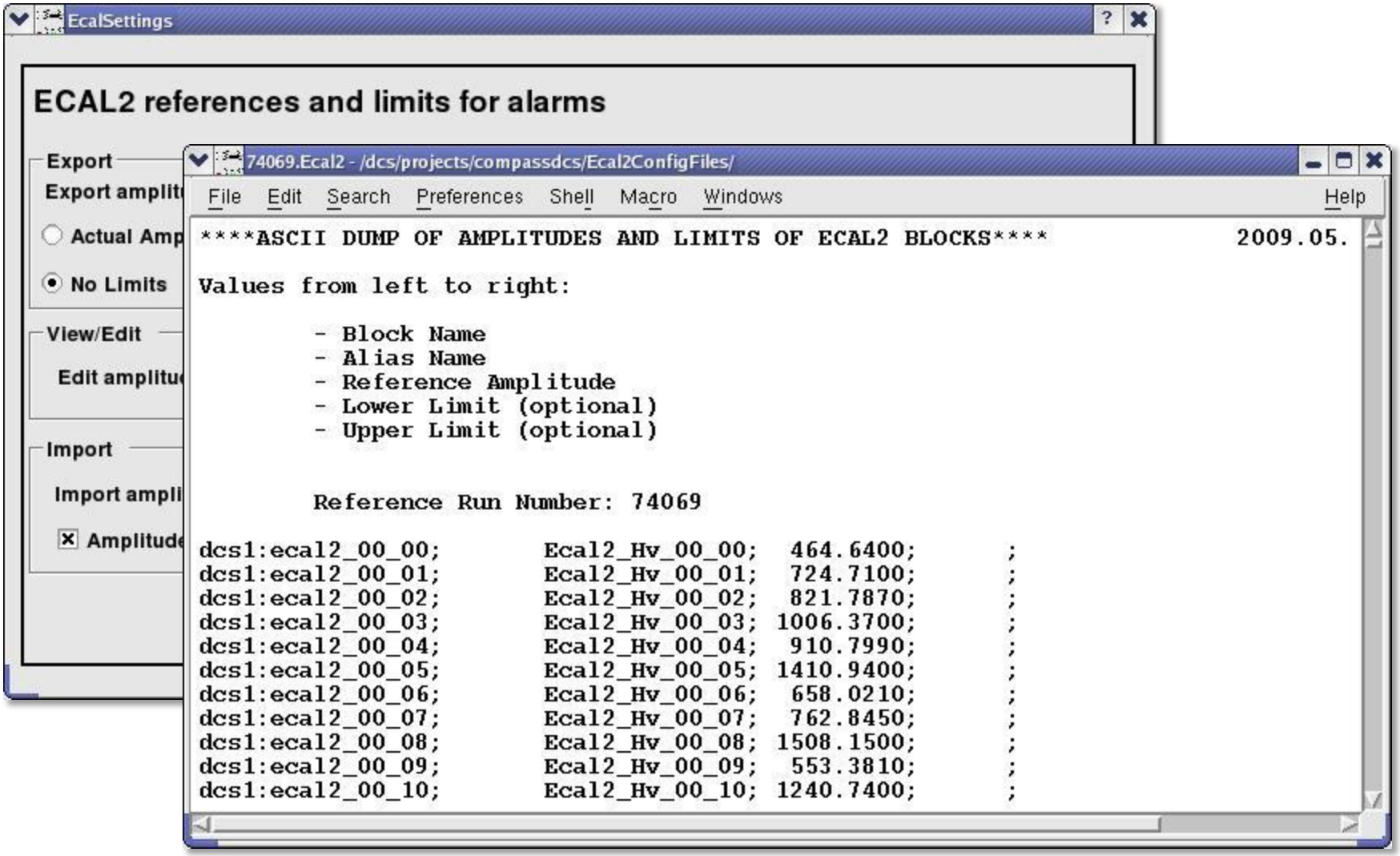
Setting of reference values

Detector experts can set the **reference values** from a dedicated panel:

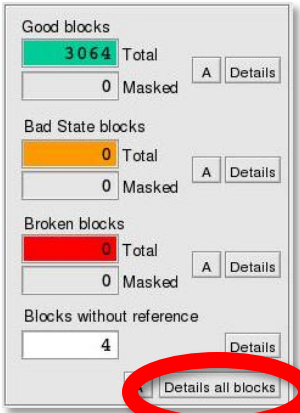


Also the **limits for alarm** can be viewed or changed from this panel.

Setting of reference values (2)



Detailed lists



List Panel

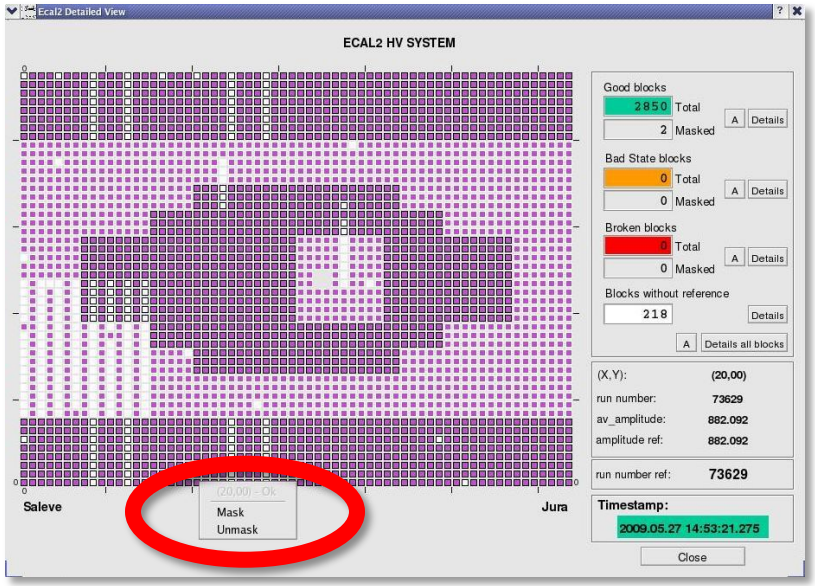
Detector name: Ecal2

Blocks	Amplitude	Run number	Amplitude ref	Status	
ecal2 00 00	94.7632	73629	94.7632	Good	Not Masked
ecal2 00 01	109.132	73629	109.132	Good	Not Masked
ecal2 00 02	208.895	73629	208.895	Good	Not Masked
ecal2 00 03	92.1974	73629	92.1974	Good	Not Masked
ecal2 00 04	265.645	73629	265.645	Good	Not Masked
ecal2 00 05	590.808	70959	-1	N.A.	N.A.
ecal2 00 06	164.053	73629	164.053	Good	Not Masked
ecal2 00 07	31.9079	73629	31.9079	Good	Not Masked
ecal2 00 08	1805.96	70959	-1	N.A.	N.A.
ecal2 00 09	732.615	70959	-1	N.A.	N.A.
ecal2 00 10	1063	70959	-1	N.A.	N.A.
ecal2 00 11	716.692	70959	-1	N.A.	N.A.
ecal2 00 12	1191.04	70959	-1	N.A.	N.A.
ecal2 00 13	1655.92	70959	-1	N.A.	N.A.
ecal2 00 14	1028.92	70959	-1	N.A.	N.A.
ecal2 00 15	1018.81	70959	-1	N.A.	N.A.
ecal2 00 16	1448.12	70959	-1	N.A.	N.A.
ecal2 00 17	721.308	70959	-1	N.A.	N.A.
ecal2 00 18	2016.99	73629	2016.99	Good	Not Masked
ecal2 00 19	1382.73	70959	-1	N.A.	N.A.
ecal2 00 20	489.077	70959	-1	N.A.	N.A.
ecal2 00 21	1170	70959	-1	N.A.	N.A.
ecal2 00 22	690.385	70959	-1	N.A.	N.A.
ecal2 00 23	496.885	70959	-1	N.A.	N.A.
ecal2 00 24	59.8158	73629	59.8158	Good	Not Masked
ecal2 00 25	249.763	73629	249.763	Good	Not Masked
ecal2 00 26	3400.23	70959	-1	N.A.	N.A.
ecal2 00 27	131.197	73629	131.197	Good	Not Masked
ecal2 00 28	116.579	73629	116.579	Good	Not Masked
ecal2 00 29	113.237	73629	113.237	Good	Not Masked

Reference Run Number: 73629

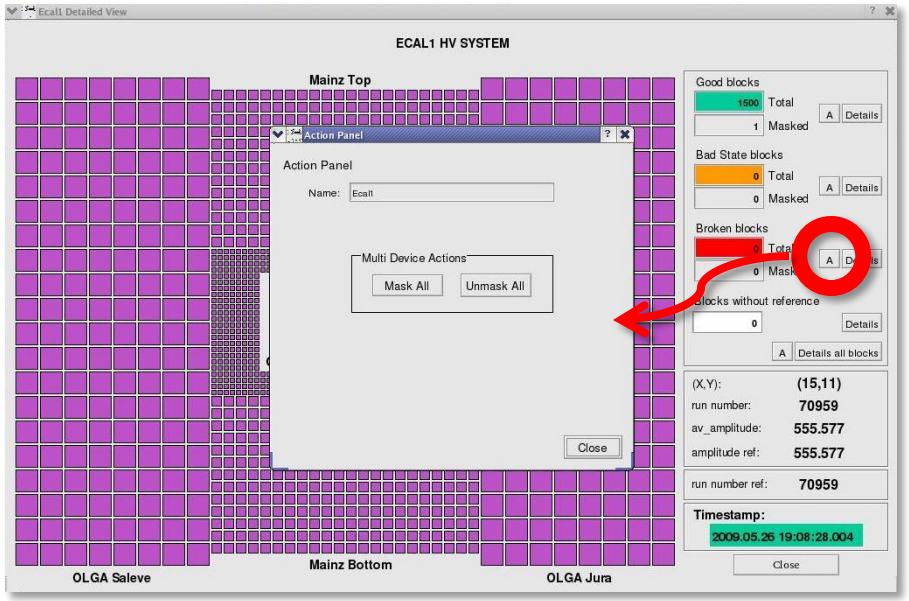
Close

Masking alarms

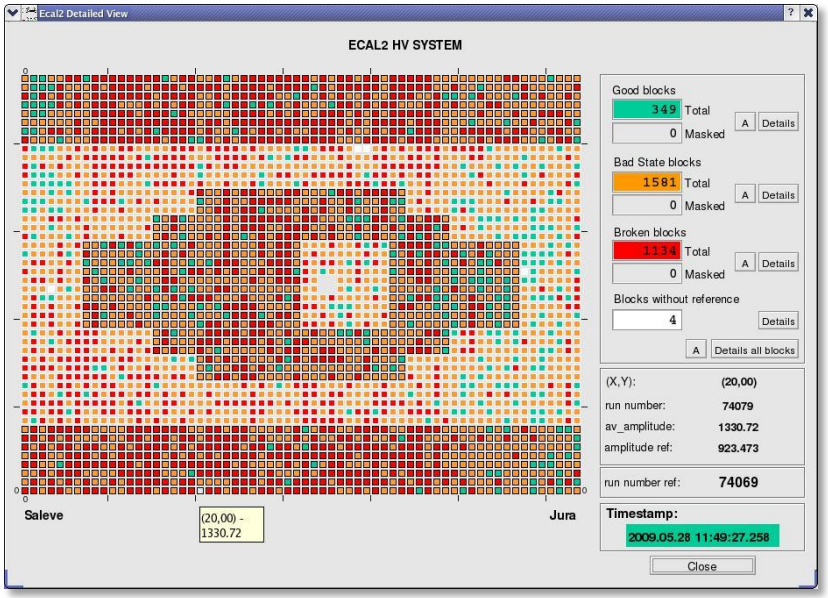


Alarms can be masked, either individually, with a right click on top of the block…

…or by groups.

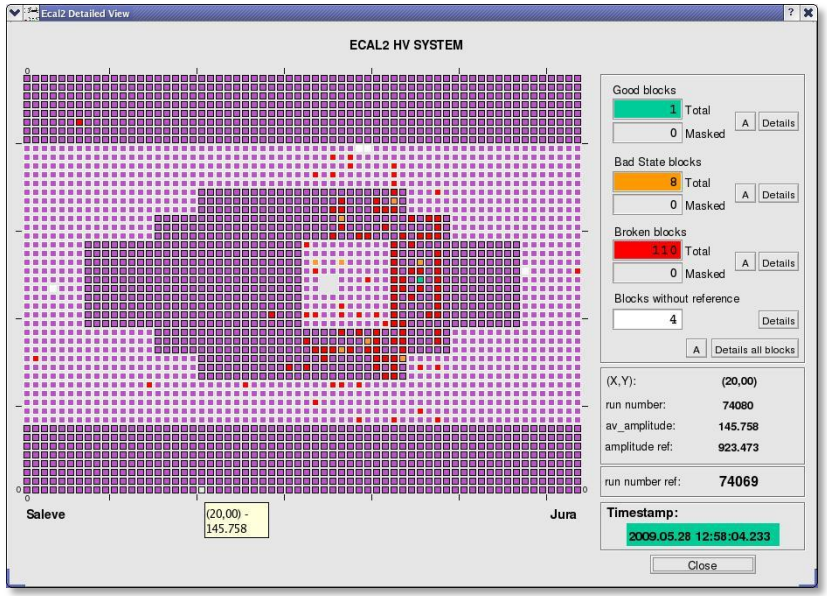


Examples



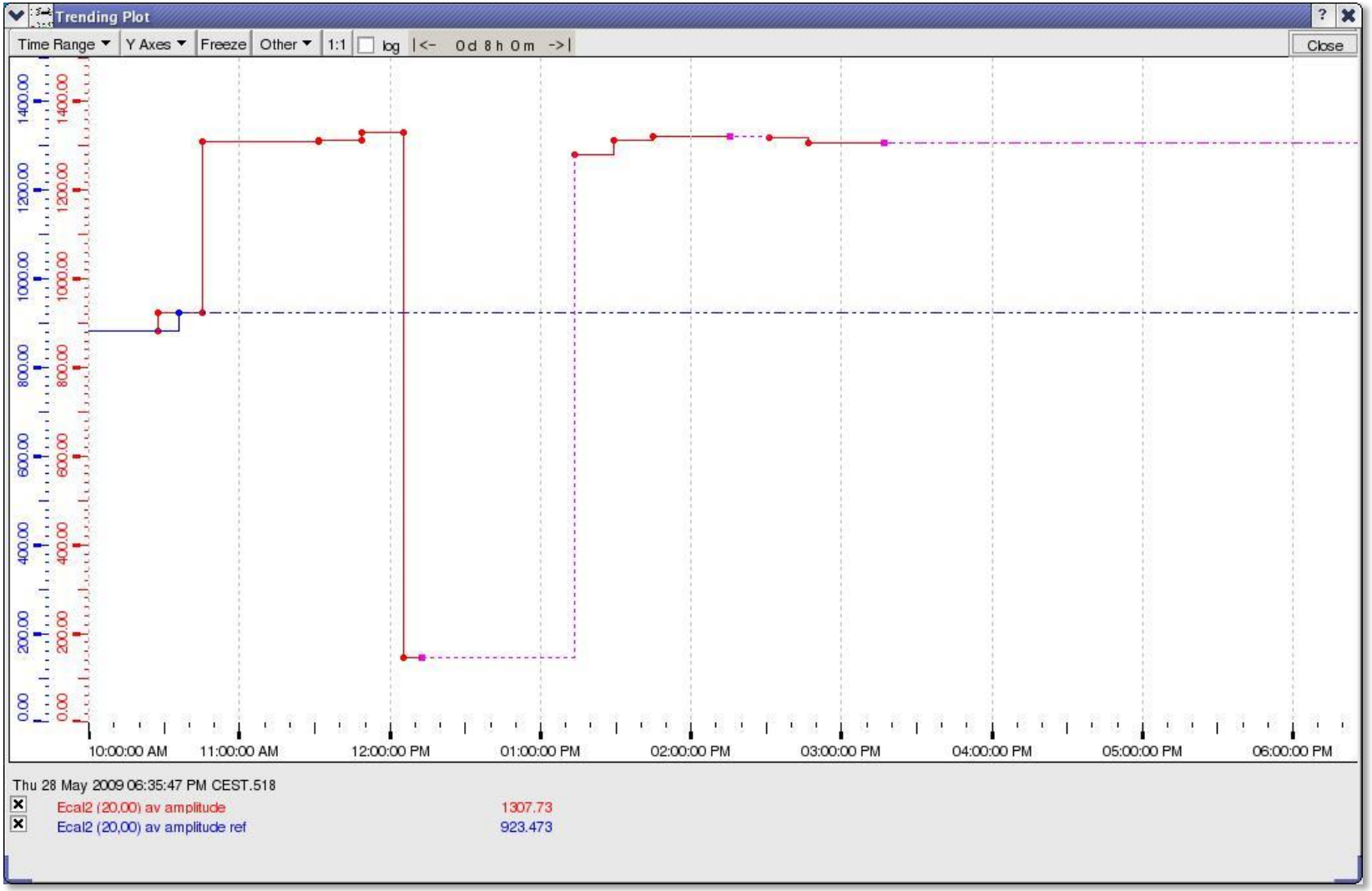
HV switched on, unstable conditions (work ongoing), unsuitable reference

HV switched off (no new values in the DB for most blocks)



Trends

The trending plots of amplitudes and references can be accessed by double clicking blocks:



Conclusions

- The monitoring wasn't tested in stable conditions yet.
- The new event builders, needed to run the online filter with ECals monitoring, are not yet at CERN.
- Work is still ongoing for the ECal1 monitoring at the level of the online filter.
- Robert Konopka is leaving CERN at the end of May. A new responsible for the online filter should be found soon!

Thank you!