

Radio observatory report and current LOFAR issues

Michiel Brentjens

Radio Observatory
ASTRON, Dwingeloo, The Netherlands

LOFAR status meeting 20090527

- 1 Observatory status
- 2 Rollout
- 3 Status of issues
- 4 Observation queue

System

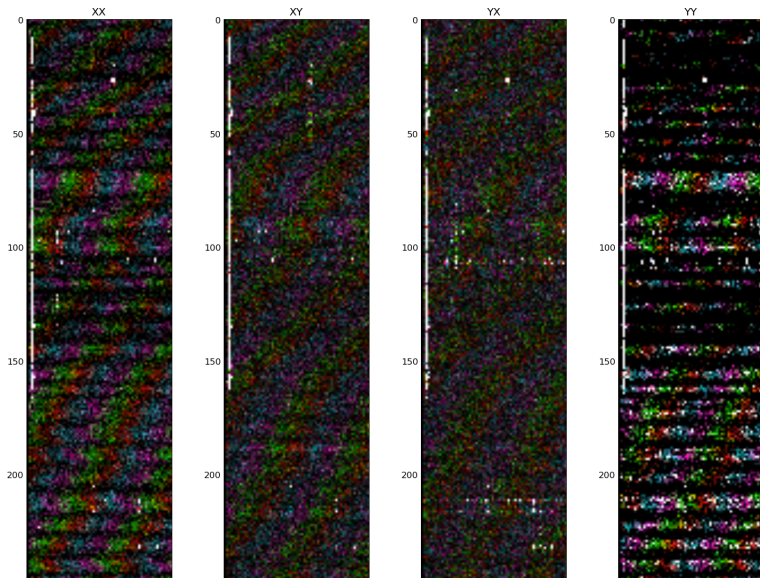
- Correlator working nicely
- CS016 will be decommissioned shortly
- CS302 in verification stage, being re-installed now

Observations

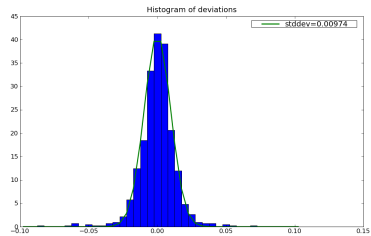
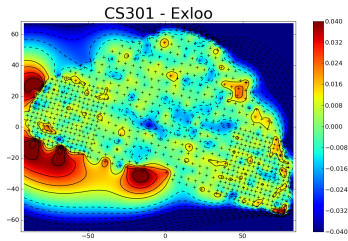
Several TBB experiments
SAS/MAC tests
Correlation experiments
between CS302 and CS010

- 1 Observatory status
- 2 Rollout**
- 3 Status of issues
- 4 Observation queue

Correlation between CS302 and CS010



First flat “terp”



- 1 Observatory status
- 2 Rollout
- 3 Status of issues**
- 4 Observation queue

Bug list (SOLVED)

Bug list ((almost) EXPLAINED)

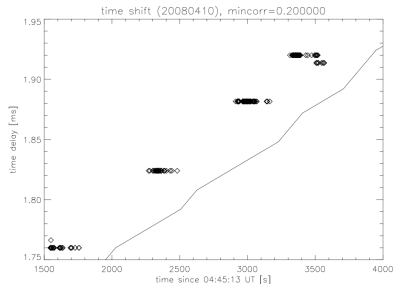
- Signal paths of even RCUs can jump between a high and low state (LBL/LBH switch broken (by ESD?). ew RCU: ESD diode, and no trafo's. Needs more research. Switches are of same type as faulty HBA delay boards. Why only even RCUs: unexplained.
- Phase jumps in waveform generator test at 200 MHz clock (Eric Kooistra)
- Non-hermiticity in ACM blocks of intra-RSP board visibilities in waveform generator tests (Eric Kooistra, will be fixed in RSPDriver)
- Unstable signal paths: ESD effect (Menno Norden). Should not be present in CS302.

Bug list(OPEN)

- Steps in delay w.r.t. Nancay
- RSPDriver crashes when closing stats window with all RCUs at CS302
- Switching from rcumode 1 to 3 on CS302 does not propagate new delay settings all the way to FIFOs.
- Very strange, possibly internal RFI (Pandey dataset) Investigated by Harm-Jan Stiepel. Cabinets at CS1 are leaking enormous amounts of RFI. No action will be taken to mitigate this. Go and measure CS302 as soon as it is available
- TP variations/ionospheric absorption (Ger de Bruyn)
- No fringe at long baselines (James Anderson, Jean-Mathias Griessmeier, Nicolas Pradel)
- CS010 unreliable/needs repeated commands before settings “stick” with RCUs. Possibly problem in rspctl. Also observed in CS001 and CS302.
- AC oscillations Pandey (nobody working on this)
- AC dips (Michiel Brentjens, PSR group. Useful data taken in

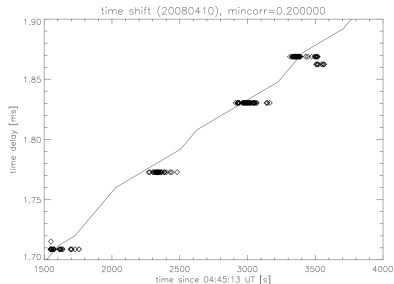
Time offset CS010 – Nancay

Before



Jean-Mathias Griessmeier

After



Jean-Mathias Griessmeier

- PPF uses 16384 coef (16 taps, 1024 coef per tap)
 - Introduces delay half the length of nr coef
 - 8192 samples = $51.2 \mu\text{s}$ at 160 MHz
 - 8192 samples = $40.96 \mu\text{s}$ at 200 MHz
- Thanks to Philippe Zarka, Eric Kooistra, and Rodolphe Weber*
- Should we try to relabel the data correctly? At what level (station? By the polyphase filter?) How? (timestamp is second + sample number. Second is too coarse, sample number can lead to confusion, esp. with the 200 MHz clock where this decides whether the sample really belongs to the next second).
 - Or do we leave as is and remember there is a correction required whenever we compare with a different instrument?

- 1 Observatory status
- 2 Rollout
- 3 Status of issues
- 4 Observation queue

Observation queue

ID	Title	PI
now		
51	SAS Mac tests	schoenmakers
coming-days		
22	First TBB HDF5 writing test through socket interface	horneffer
8	test dataset for trigger algorithm of UHEP mode of CR	singh
13	Single second all sky survey with TBBs	swelles
7	Test dataset for PPF inversion	singh
57	Second Fringe CS302-CS001-CS0101-CS016	gunst
next-week		
44	CS302 Station Verification with Pulsars 1: Single Beam, Two Ears (48 Tiles)	stappers
45	CS302 Station Verification with Pulsars 2: Two Beams One From Each HBA Ear	stappers
46	CS302 Station Verification with Pulsars 3: Tile Out Single Ear Primary With Tied-Array Fan Beams (of Two Ears)	stappers
11	Max. bandwidth observation	gunst
32	JEEJOANS (Joint Exloo-Effelsberg Jupiter Observation, and Nancay Spiral-antennae)	griessmeier
55	Transient buffer board read outs	eikelboom
next-month		
4	Station imaging campaign	wijnholds
56	ITRF BeamServer functionality test	brentjens
6	100hrs of pulsars (WR)	leeuwen
5	Frequency mosaicing experiment	pandey
sometime		
43	Test 12 microstationmode using SAS/MAC	schoenmakers
observed		
60	Storage software test	broekema
59	TBB Trigger testing and readout on CS001C	corstanje
9	CS-1 Correlator Test Dataset	anderson
31	conversion of data format from .out to .cor for pulsar dataset	singh

1..21 out of 21

