Radio observatory report and current LOFAR issues

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LOFAR status meeting 20090708

Outline

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Observatory status

System

- CS302 not reachable over network (intermittent)
- CS001 and CS016 decommissioned
- RS503 hardware validation almost complete
- BG/P available

Repairs

- BG/P maintenance day completed: (broken patch repaired)
- RS307 had errors on SERDES link beyond RSP9 (repaired)
- RS307 had XC errors on RSP11 (repaired)
- Temporary sas001 power failure (repaired)
- MCU001 disk full: PVSS config lost, no SAS/MAC (repaired)

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Observations

observation98 LBA inner broad band RFI/non-linearity
L2009_13216(CS001C), L2009_13217(CS010C),
L2009_13218(CS302C).

Several TBB Massively improved TBB 2 H5

SAS/MAC tests

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- Several small software fixes/inconveniences by Overeem and Donker

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Bug list ((almost) EXPLAINED)

- CS010 unreliable/needs repeated commands before settings "stick" with RCUs. Possibly problem in rspctl. Also observed in CS001 and CS302 (Overeem). hba-write command may not be in same second as rspctl rcu commands. hba update to 10 seconds, real fix in progress.

- Signal paths of even RCUs can jump between a high and low state (LBL/LBH switch broken (by ESD?)). New 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, Brentjens) Test observation in queue.

- Non-hermiticity in ACM blocks of intra-RSP board visibilities in waveform generator tests (Overeem, Kooistra, will be fixed in RSPDriver)

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- Occasional timestamp jumps of 1 in CS302/RSP0 data sent to CEP. Due to CRC errors? (Kooistra, Romein)

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Bug list (OPEN)

- Steps in delay w.r.t. Nancay
- 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)
- AC oscillations Pandey (nobody working on this)
- HBA AC oscillations (Wijnholds)
- AC dips (Michiel Brentjens, PSR group. Useful data taken in second psr busy week)

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Outline

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High Temperatures

```
====== Thu Jul  2 13:07:14 2009 ==================
=== Station status ===
          | cabinet 0 | cabinet 1 | cabinet 3 |
mode      |      AUTO |      AUTO |      AUTO |
status    |         2 |         0 |         2 |
set point |     34.28 |     31.89 |     29.85 |
temperature|    39.99 |     34.07 |     34.19 |
humidity  |     26.91 |     32.72 |     35.43 |
fans      | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 |
doors     |    CLOSED |    CLOSED |    CLOSED |
heater    |      none |      none |       OFF |
power 48V state = ON
power LCU state = ON
lightning state = BAD

====== Thu Jul  2 13:07:24 2009 ==================
=== Station status ===
          | cabinet 0 | cabinet 1 | cabinet 3 |
mode      |      AUTO |      AUTO |      AUTO |
status    |         A |         0 |         2 |
set point |     34.28 |     31.89 |     29.85 |
temperature|    40.01 |     34.09 |     34.19 |
humidity  |     26.81 |     32.57 |     35.45 |
fans      | 1 2 3 4 | 1 2 3 4 | 1 2 3 4 |
doors     |    CLOSED |    CLOSED |    CLOSED |
heater    |      none |      none |       OFF |
power 48V state = OFF
power LCU state = ON
lightning state = BAD
```

- RSP Rack limit: $40°C$
- LCU Rack limit: 35–$38°C$
- RS307 LCU Cabinet
- RS503 LCU Cabinet
- CS302 Rack 0
- Problems occur when $T_{\mathrm{outside}} \gtrsim 25°C$

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Outline

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Observation queue

List of LOFAR observations - Show Todo

[_____] [Search observations]

ID	Title	PI	Activity	Status	Creator
	now				
103	LBA first fringe experiment with CS302, RS307, RS503, and CS010	brentjens	yesterday	scheduled	brentjens
104	more TBB observations of lightning	terveen	yesterday	processed	brentjens
101	Speed Test of Socket Mode in Transient Buffer Board Dumps	eikelboom	4 days ago	scheduled	eikelboom
99	TBB observations of lightning	terveen	1 week ago	observed	terveen
97	1h observation of Crab Pulsar to prepare TBB trigger latency test	terveen	1 week ago	accepted	terveen
92	New beamctl test: properly initialises FIFOs with cable delays	brentjens	1 week ago	specified	brentjens
	coming-days				
67	Verify source of phase jumps in waveform generator test at 200 MHz clock	brentjens	1 week ago	specified	brentjens
11	Max. bandwidth observation	gunst	1 month ago	accepted	gunst
46	CS302 Station Verification with Pulsars 3: Tile Out Single Ear Primary With Tied-Array Fan Beams (of Two Ears)	stappers	1 month ago	accepted	hessels
45	CS302 Station Verification with Pulsars 2: Two Beams One From Each HBA Ear	stappers	1 month ago	accepted	hessels
	next-week				
8	test dataset for trigger algorithm of UHEP mode of CR	singh	1 week ago	accepted	singh
32	JEEJOANS (Joint Exloo-Effelsberg Jupiter Observation, and Nancay Spiral-antennae)	griessmeier	1 week ago	specified	griessmeier
85	1/4 s Correlator Software Test	broekema	3 weeks ago	accepted	anderson
13	Single second all sky survey with TBBs	swelles	4 weeks ago	accepted	brentjens
59	TBB Trigger testing and readout on CS001C	corstanje	1 month ago	specified	corstanje
7	Test dataset for PPF inversion	singh	1 month ago	accepted	singh
	next-month				
4	Station imaging campaign	wijnholds	1 month ago	accepted	brentjens
56	ITRF BeamServer functionality test	brentjens	1 month ago	accepted	brentjens
6	100hrs of pulsars (WR)	leeuwen	3 months ago	accepted	leeuwen
5	Frequency mosaicing experiment	pandey	3 months ago	specified	brentjens
	sometime				
43	Test 12 microstationmode using SAS/MAC	schoenmakers	1 month ago	specified	kuper
	observed				
84	TBB testing and debugging of tbb2h5 program (data transfer in socket mode)	corstanje	4 days ago	observed	corstanje
98	Investigation of LBA INNER stability and broad band interfgerence/intermodulation	wijnholds	5 days ago	observed	brentjens
51	SAS Mac tests	schoenmakers	2 weeks ago	archived	kuper
1	conversion of data format from .out to .cor for pulsar dataset	singh	3 weeks ago	archived	singh
79	Transient Buffer Board read outs	eikelboom	3 weeks ago	successful	eikelboom
68	Storage software test	broekema	3 weeks ago	successful	broekema
65	Storage software test	broekema	3 weeks ago	successful	broekema
22	First TBB HDF5 writing test through socket interface	horneffer	3 weeks ago	observed	brentjens