

EVN Session Overview — FEB04

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The following information is mainly drawn from station feedback. Please refer to the EVN feedback pages for more details (<http://www.evlbi.org/session/feedback.html>). Stations scheduled and observed successfully (sometimes with minor failures) are indicated by \checkmark . Stations scheduled but failed to observe, or produced no fringes for some reasons are indicated by a dash (-), no feedback from a station by the date of this report is indicated by a black dot (\bullet). Abbreviations for the most common failures are listed below. Please send suggestions or additional info to Zsolt Paragi (zparagi@jive.nl).

A list of abbreviations:

- FS** – Field System errors/crash
- HIGH** – T_{sys} higher than usual (e.g. because of weather)
- LATE** – late start of observation
- LO** – incorrect LO frequency
- LOCK** – VCs/BBCs unlocked to maser
- LINK** – problems with the microwave link between Cm and Jb
- HA-E** – some scans missed due to HA or elevation limit
- PARI** – high parity errors
- PCAL** – various problems with phasecal (unstable, high, missing)
- PHAS** – problems with phasing up some of the telescopes
at Wb, mostly RTC and RTD (longest baselines)
- POIN** – pointing problems, some data may be affected or lost
- RECE** – receiver fault
- RECO** – problems with recorder, some data may be lost
- RFI** – RFI reported
- SLEW** – data loss due to limitations in slewing the telescope
- TSYS** – T_{sys} data are corrupted or missing in one or more channels
- WIND** – part of the experiment missed due to severe weather
conditions (e.g. gusting winds, snowstorm etc.)
- MISS** – small parts of the experiment were missed due to any
other reasons not included above (e.g. operator error)

1.3cm	Cm	Ef	Jb2	On20	Mc	Nt	Ur	Sh	Mh
F04K1	$\sqrt{\text{HIGH}}^{(1)}$	✓	$\sqrt{\text{HIGH}}^{(1)}$	✓	$-\text{LO}^{(2)}$	✓	$-\text{LO}^{(3)}$	✓	$\sqrt{\text{HIGH}}^{(4)}$
CL04K1		✓	✓	✓	✓	✓	–	–	$\sqrt{\text{PCAL}}^{(5)}$
ER017	$\sqrt{\text{RECO}}^{(1)}$	$\sqrt{\text{WIND}}^{(6)}$	✓	✓	$-\text{LO}^{(2)}$	✓	$-\text{LO}^{(3)}$	✓	$\sqrt{\text{PCAL}}^{(4)}$
EP044	$\sqrt{\text{RECO}}^{(1)}$	$\sqrt{\text{WIND}}^{(7)}$	✓	✓	$-\text{LO}^{(2)}$	✓	$-\text{LO}^{(3)}$	✓	$\sqrt{\text{PCAL}}^{(4)}$
N04K1	$\sqrt{\text{RECO}}^{(1,8)}$	✓	$-\text{RECO}^{(9)}$	$\sqrt{\text{VC08}}^{(10)}$	$-\text{LO}^{(2)}$	✓	$-\text{LO}^{(3)}$	✓	$\sqrt{\text{PCAL}}^{(4)}$

Comments on the 1.3cm session:

1. Cm and Jb2 in the K-band session: Heavy rain throughout F04K1. In the K-band session Jb2 recorded on Mk5, Cm on tape. For Cm track 15 was remapped to 35.
2. Mc in the K-band session: There were no fringes in F04K1. There was an LO offset which affected all K-band experiments. The problem was due to the RF reference input of Local Oscillator. This prevented the LO output from being properly locked (the instrument worked with its internal reference so an offset was generated).
3. Ur in the K-band session: Used uncooled receiver. In F04K1 fringes could not be found at JIVE. The LO was locked to 22100 MHz instead of 22000 MHz. In N04K1 the LO was 22000 MHz instead of the scheduled 21900 MHz.
4. Mh in the K-band session: In F04K1 the TPI of IF distributor C was stuck; heavy rain, T_{sys} high. The phasecal was not connected during the session.
5. Mh in CL04K1: Observed, but the rxg file was not updated (data would not improve the calibration).
6. Ef in ER017: Few scans have been skipped for pointing. The experiment was terminated at 18:57 UT because of snowfall.
7. Ef in EP044: Strong rain in the first half of the experiment.
8. Cm in N04K1: Signal only in BBC01 due to MERLIN link restriction.
9. Jb in N04K1: Repatched only BBCs 5,6,7,8 to high. Disk recording failed. The problem occurred only in 2-headstacks experiments.
10. On in N04K1: No signal in VC08 - there might be a bad cable.

3.6/13cm	Ef	Wb	On25	Mc	Nt ⁽¹⁾	Ur	Sh	Hh	Ro70
CL04X1	√		√	√ ⁽²⁾	√		√		
N04X1	- ⁽³⁾ _{LO}	√ ⁽⁴⁾ _{FS}	√	√	√ ⁽⁵⁾ _{RECO}	√	√	√	
GM052A	- ⁽³⁾ _{LO}	√ ^{LATE}	√ ⁽⁶⁾ _{HA-E}	√	√			√	√ ⁽⁷⁾ _{RECO}

Comments on the 3.6/13cm session:

1. Warning for the correlators: Noto had a clock jump.
2. Mc in CL04X1: Calibration data was not changed.
3. Ef in the X-band session: Probably bad setup was used at the station.
4. Wb in N04X1: IF1 errors reported by FS, but no actual problems seen.
5. Nt in N04X1: The first 30 minutes of the observation was lost due to MK5 disk-pack problems.
6. On in GM052A: 1524-136 had too low elevation around 01:00 UT.
7. Ro70 in GM052A: The subreflector was configured in AUTOFOCUS mode. The write head (head1) was not in requested position during scan 311. Next scan head positioning was ok. Due to the antenna elevation prelimit being 6 deg, source of scan 45 was completely lost. Scan 65 was only partially lost (that source went above 6 deg elevation around 01:34:42Z). Also the antenna was 1min5sec and 1min51sec late for scans 27 and 331 respectively (not enough time available on the schedule to arrive on time).

6cm	Cm	Ef	Wb	Jb1	On25	Mc	Nt ⁽¹⁾	Tr	Ur	Sh	Hh
F04C1		— ⁽²⁾ _{LO}	✓	✓	✓	✓ ⁽³⁾ _{LATE}	✓			✓	✓
KAH1		✓	✓ ^{HA-E}	— ⁽⁴⁾ _{RECO}			✓				
GM052B		✓	✓	✓	✓ ⁽⁵⁾ _{HA-E}	✓	✓	✓			✓ ⁽⁶⁾ _{RECO}
N04C1	✓ ⁽⁷⁾ _{RECO}	✓ ^{LATE}	✓ ⁽⁸⁾ _{RECE}	— ⁽⁴⁾ _{RECO}	✓ ^{LATE}	✓	✓	✓	✓	✓	✓
EB027A	✓ ^(7,9) _{RECO}	✓	✓ ⁽¹⁰⁾ _{RECO}	✓ ⁽¹¹⁾	— ⁽¹²⁾	✓ ⁽¹³⁾ _{RECO}	✓	✓			
CL04C1		✓		✓	— ⁽¹²⁾					✓	
EK019	✓ ^(7,14) _{RECO}	✓ ⁽¹⁵⁾ _{LATE}	✓	✓	— ⁽¹²⁾	✓	✓	✓			

Comments on the 6cm session:

1. Warning for the correlators: Noto had a clock jump.
2. Ef in F04C1: There were no fringes in the ftp fringe test. Bad setup was used at the station.
3. Mc in F04C1: The LO problem detected during the K-band session was fixed, but the experiment started late. Some of the phasecal hardware was replaced on 13 February, after examining F04C1 data with the Mk5 chchk program. Some tones were much lower than the others.
4. Jb in KAH1 and N04C1: Disk recording failed. The problem occurred only in 2-headstacks experiments.
5. On in GM052B: 1524-136 had too low elevation around 01:00 UT.
6. Hh in GM052B: Vacuum loop dropout caused loss of end of scan 0002 and displaced scan 0003 such that the end was lost due to end of tape.
7. Cm in the C-band session: Track 15 was remapped to 35.
8. Wb in N04C1: VC15 LO was unlocked.
9. Cm in EB027A: Problem with MERLIN control. On source at 21:52 UT (scan 2). Phase CAL not present at start - switched on at 22:12 UT.
10. Wb in EB027A: Auto bank-switch failed. Done by hand.
11. Jb in EB027A: Problem with MERLIN control. On source at 21:50 UT (scan 2). Vacuum problem occurred around 23:28 UT. Restarted successfully at 00:14 UT.

12. On in EB027A–EK019: Observed less than an hour in EB027A (until around 22:30). Stopped because there were problems with tracking. Could not do CL04C1 and EK017 either.
13. Mc in EB027A: Possible fault on tape; apparently head 2 was not in the requested position.
14. Cm in EK019: Problems with tape at start. Schedule started successfully for 19:14 UT scan.
15. Ef in EK019: The first two scans were lost.

18cm	Cm	Ef	Wb	Jb1	On25	Mc	Nt	Tr	Ur	Sh	Hh	Ro70
EB026	✓ ⁽¹⁾ _{RECO}	✓ ⁽²⁾	✓ ⁽³⁾ _{RECO}	✓	✓ ⁽⁴⁾ _{RECE}	✓	✓	✓				
EB025	✓ ⁽¹⁾ _{RECO}	✓	✓	✓	✓ ⁽⁵⁾	✓ ⁽⁶⁾ _{RECO}	✓	✓ ⁽⁷⁾	✓			
CL04L1		✓		✓	✓ ⁽⁸⁾	✓	✓	✓	— ⁽⁹⁾	✓		
EA029		✓	✓	— ⁽¹⁰⁾ _{RECO}	✓	✓	✓		✓	✓	✓ ^{RFI}	
EB027B		✓ ⁽¹¹⁾ _{RECO}	✓ ⁽¹²⁾ _{RECO}	✓	✓ ⁽¹³⁾ _{RECO}	✓ ⁽¹⁴⁾ _{POIN}	✓ ⁽¹⁵⁾ _{LATE}	✓ ⁽¹⁶⁾				✓ ⁽¹⁷⁾ _{RECO}
N04L1	✓ ^(1,18) _{RECO}	✓ ⁽¹⁹⁾ _{RECO}	✓	— ⁽¹⁰⁾ _{RECO}	✓	✓ ⁽²⁰⁾	✓	✓	✓	✓	✓ ^{RFI}	
GG053A	✓ ⁽¹⁾ _{RECO}	✓	✓	✓	✓ ⁽²¹⁾ _{LATE}	✓						
GG053B	✓ ⁽¹⁾ _{RECO}	✓	✓ ⁽²²⁾ _{RECO}	✓	✓	✓ ⁽²³⁾ _{WIND}						
GG053C	✓ ⁽¹⁾ _{RECO}	✓	✓	✓	✓	✓						

Comments on the 18/21cm session:

1. Cm in the L-band session: Track 15 was remapped to 35.
2. Ef in EB026: From UT0140 till the end, the communication between FS and formatter was not working. As the formatter itself seemed to work properly, we did not restart the FS. That was done after the experiment, after that everything was ok.
3. Wb in EB026: Auto Bank-switch failed. Done by hand.
4. On in EB026: The receiver warmed up during the night. Tsys increased from around 30 to 60 K.
5. On in EB025: Problems with Mark5. Could not change to a new bank. Had to reboot the Mark5-unit. Happend around 18:50 UT. Lost several scans. There might also be problems with the phasecal around that time. The operator could not see the signal. It could just be the oscilloscope since it we could see the signal this morning.
6. Mc in EB025: Some scan lost because vacuum loss.
7. Tr in EB025: A few times BBC5 indicated no 1pps.
8. On in CL04L1: Calibration done 20 Feb using uncooled HEMTs. For the 21 cm (and N04L1) experiments used uncooled HEMTs since one of the cooled HEMT is bad at 21 cm.

9. Ur in CL04L1: It's better to use Tsys in logfile. Measured Tcals for every 18cm experiment and put it in rxgfile, because it changed a little bit from time to time and with frequency.
10. Jb in EA029 and N04L1: Disk recording failed. The problem occurred only in 2-headstacks experiments.
11. Ef in EB027B: Problems with a bad diskpack and with the MK5 system itself led to the loss of data between UT0106-0202 and UT0416-end.
12. Wb in EB027B: RFI 1634.49 MHz (VC01 and VC02) Auto bank-switch failed. Done by hand.
13. On in EB027B: FS did not switch Mark5-bank automatically. Lost some time.
14. Mc in EB027B: Lost first 3 scans for antenna problems.
15. Nt in EB027B: The tape change at 6:08 UT took place too late. The observation restarted at 6:32 UT with 100 feet of difference in tape footage. After 6:53 UT the tape footage was correct.
16. Tr in EB027B: Occasional instabilities of signal levels in BBC5.
17. Ro in EB027B: Low tape sensor actuated unexpectedly at 03:44:07Z (pass 2R). Tape was manually repositioned by operator at beginning of next pass (3F). DR#102312 was opened. Just one scan was not recorded. Video converter 5 (center frequency 1666.49 MHz) was affected by the known 1660-1670 MHz interference during the whole observation. Other RFIs present in some VCs: VC#1: schedule line 470 (scan 41) VC#3: schedules lines 301, 887 and 956 (scans 26, 77, 83). The calibration signal (noise diode) was not configured due to lack of time during Pre-experiment configurations. Nominal system temperature at zenith is 30.8 K.
18. Cm in N04L1: Lost vacuum at start of experiment. Did not solve problem until scan at 18:55 UT. Also, vacuum lost for final scan at 19:45 UT.
19. Ef in N04L1: Again problems with MK5. We had to reboot several times. The first two scans were lost.
20. Mc in N04L1: Some VCs (1,2,7,8) were outside of the IF band.
21. On in GG053A: Operator started the wrong schedule. Lost about 20min.
22. Wb in GG053B: Disk-bank switching failed. Done by hand.
23. Mc in GG053B: Clouds and rain most of the time.