EVN TOG Meeting 2005
Onsala Observatory
Robledo Report

1. Hardware upgrades.

Mark5 Upgrade Plan at Robledo completed by end of February 2005. This plan included following upgrades:

a. PC Field System computer (PCFS) upgraded from 90 MHz Pentium PC to 1.5 GHz PC. The screen was replaced by a slide-out drawer containing the keyboard, LCD video and mouse.

b. Installation of the GPS receiver and a frequency counter. Currently not able to provide gps-fmout data during experiments due to a station dependent software problem (vlbisrv server communication problem with frequency counter).

c. Installation of two Mk5A units.

At DSN phase calibration extraction is performed using the Digital Tone Extractor (DTE). The DTE extracts phase and frequency from 4 channels provided by MarkIV formatter.

The DTE Display is started from OPRIN window typing do_dte (see Figure 1). Start-DTE button executes pcald1 procedure. Stop-DTE sends a pcald=off command.

Phase cal (pcald) data is provided in FS log, e.g.:

2005.172.12:15:30.28#pcald#tone/1u,#1,200,1, 0.76000000,0.037476,-85.125435,0.000569,0.000204,0.812710
2005.172.12:15:37.23#pcald#tone/2u,#1,200,1, 0.74000000,0.040573,-176.960159,0.000233,0.000035,0.325310

At DSN there are no plans yet to upgrade formatter and decoder firmware unless it is considered necessary.

Figure 1. Digital Tone Extractor display.

2. MarkIV DAT Maintenance.

Linearity of MarkIV Video Converters has been checked (see Figure 2). Problems were found with VC#13, it has been replaced by a spare.
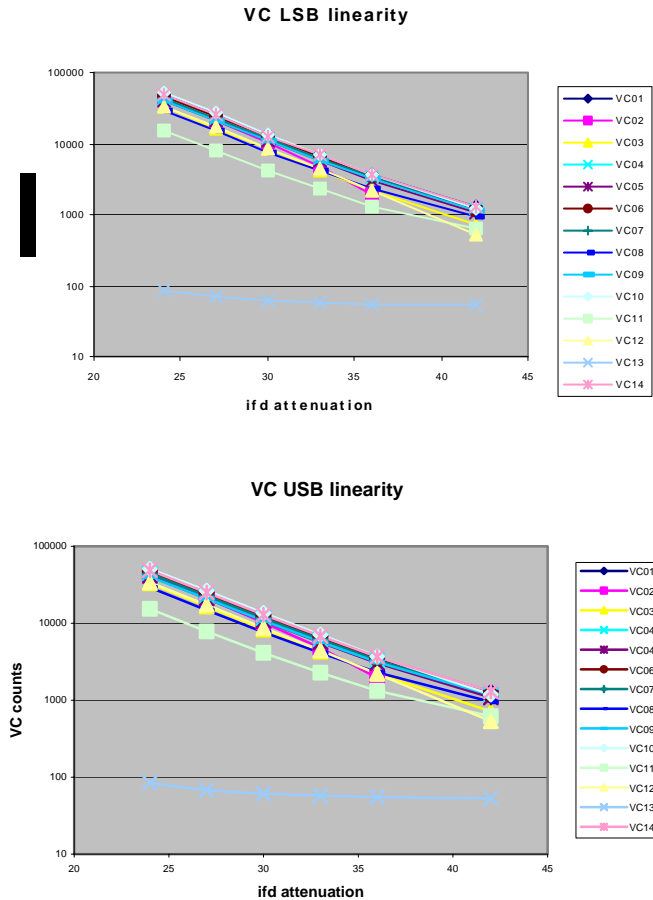

Figure 2. Mark IV VC Linearity (LSB –top- and USB –bottom-).

Additionally, zero levels were checked. No significant interference or oscillation has been found using 2 MHz filters. Power levels were measured and found correct for good sampler statistics.

CHCHK has been installed at one of our Mark5 recorders. Not yet used. More documentation about its configuration will be welcome! (or configuration examples).

2. Future hardware upgrades.

The Equipment Activity Controller (EAC) will be upgraded from a Sun UltraSPARC 1 to a Sun Blade 2000 workstation.

Robledo e-VLBI plans: *last mile* Gbps coverage problem from Robledo to the Spanish Research and Educational Network (RedIRIS) not yet solved.

3. Software upgrades.

Included in the Mark5 Upgrade Plan a new PCFS software release was delivered. Field System software has been upgraded to version 9.6.9 (including Station Dependent software version 14.2.0).

4. Future software upgrades.

First transition phase to turn the EAC into a MON-2 compliant subsystem for APC system is planned for July 2005 (on a best-effort basis).

5. Plans for new receivers.

a. C-band (6 cm). EVN proposal for C-band installation at Rob70 is still under negotiation.

b. Q-band (7 mm). The Q-band receiver not yet installed at DSS55 beam wave guided antenna.

6. Calibration issues at DSN.

a. Sub-reflector configuration. Subreflector has been configured in autofocus mode for all GLOBAL and EVN observations.

b. Calibration signal. Current EAC software is still not able to control the calibration signal (noise diodes) during the observations. In order to provide system temperature monitoring, the calibration signal was configured and controlled manually from the DTT Maintenance Terminal (DMT).

c. Pointing and Efficiency.

Before EVN session#1 2005 DSS63 (70m) K-band pointing model was improved using the Pointing and Efficiency tool (PET).

Rxg files for L, X and K-bands were generated using GNPLT application. Data was collected by the onoff procedure. Calibration files were provided to JIVE correlator (for sessions #1 and #2).

We were not able to generate ANTAB coefficients and tsys files using the ANTABFS application. It has been found an incompatibility problem between our FS version (9.6.9) and current ANTABFS application version. A modified version has been generated for us. Not yet tested at Robledo.

d. Water Vapor Radiometer.

Robledo water vapor radiometer continuously collects data performing tipping curves at different azimuths. WVR data could be provided for the observation period in appropriate format. See Figure 3 for WVR display.
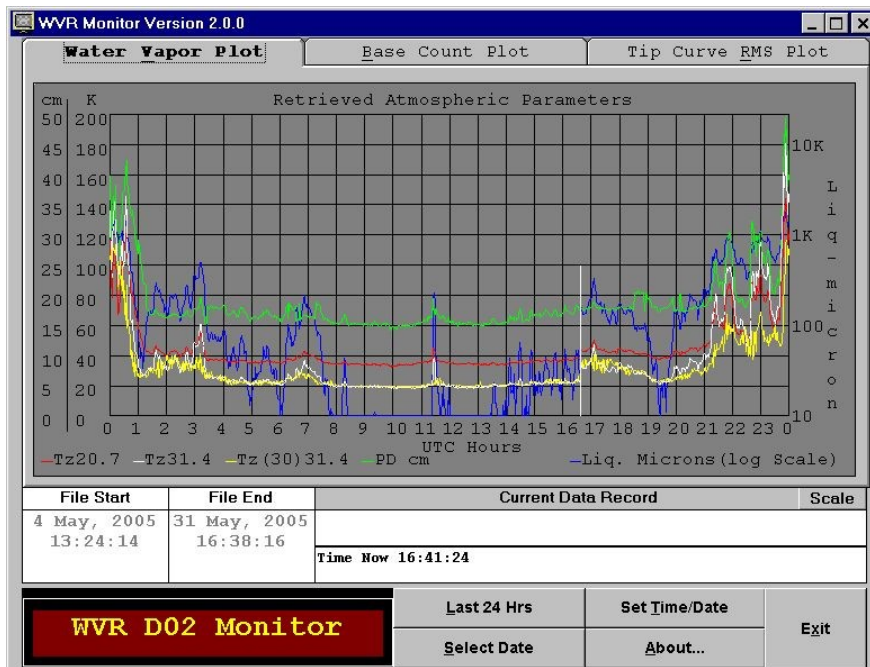

Figure 3. Water Vapor radiometer display.

7. Robledo support to EVN observations.

For EVN session#1 2005 Robledo participated in two observations:

    a.   GM059A (X-RCP): Small delays in the schedule execution (and too short scans) produced tape position errors at beginning of reverse passes of about 1000 feet.

    b.   EI006B (K-DUAL): Not enough time was provided to swap tapes because SCHED station catalog information for Robledo was incorrect. A corrected version was provided.

For EVN session#2 2005 Robledo participated in one observation:

    c.   ES054A (L-LCP): First Mark5 Robledo support for EVN. Several sources were lost because antenna hit high elevation pre-limits. Latest SCHED station catalog contains

correct antenna pre-limits values. Are PIs using not up-to-date SCHED catalogs versions?

Best regards,

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