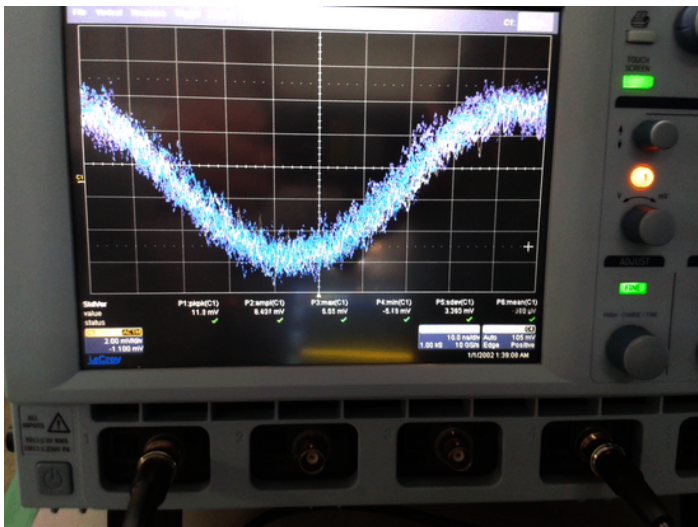


During the c162 GMVA campaign PV did not have fringes for unknown reasons. Several tests have been scheduled in Dec 2016 to verify the VLBI system at PV.

Phase Noise (13.12.2016)

The IF signal (containing a line at 740 MHz) was fed to the phase noise measurement box which showed a phase jitter of around 30° in both polarizations. This is the value typically observed at PV at 3mm.



0-baseline test using tone injected into the IF

A tone was inserted onto the IF noise using a frequency generator. The IF was split and fed into both core boards of the DBBC2 and recorded on the Mark5B+.

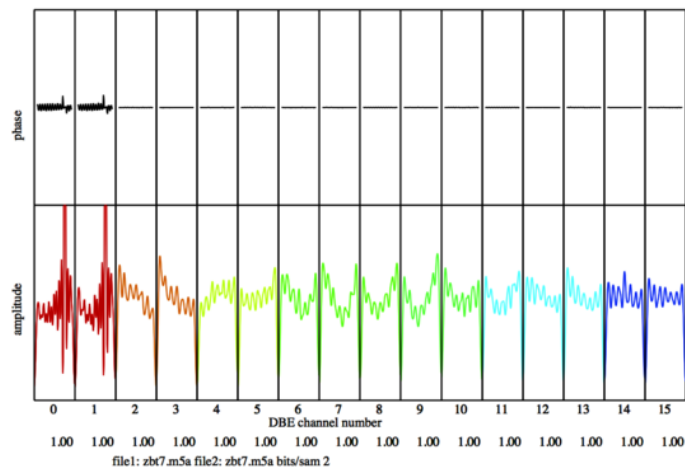
The DBBC2 was running the PFB V16 firmware and the channel selection was done following the normal GMVA setup:

```
dbbcform=flex
```

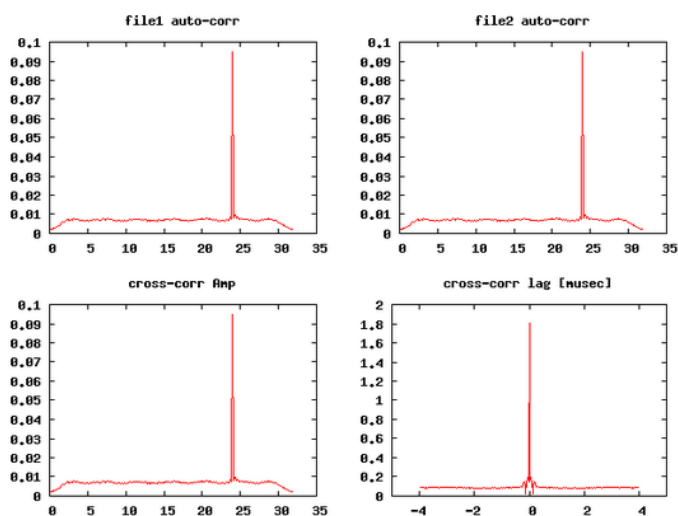
```
dbbctrk1=1,p-0,p-1,p-2,p-3,p-4,p-5,p-6,p-7,p-8,p-9,p-10,p-11,p-12,p-13,p-14,p-15
```

```
dbbctrk1=2,v1-5,p-5,v1-6,p-6,v1-7,p-7,v1-8,p-8,v1-9,p-9,v1-10,p-10,v1-11,p-11,v1
```

Tone injection at 856MHz so it should appear in the lowest (v1-5 and p-5) band:



vlbi2 output plot confirms the correct position of the tone.

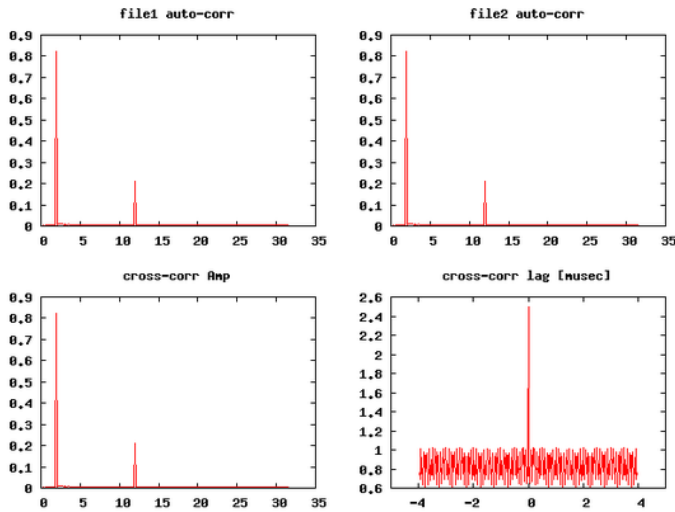


zerocorr output of the autocorrelations and cross-correlation spectra.

0-Baseline test using tone injected in the receiver cabin

The tone generator was inserted into the beam in the receiver cabin. The synthesizer was tuned to yield a tone after mixing to the IF of 740MHz.

Recording was done identical to what was described in the previous section. Zerocorr was used to verify that the tone is appearing in the expected recorded channels 8 & 9:

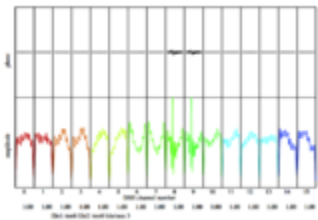


The plot shows the auto/cross-correlations for recorded track 8. The tone of 740 MHz (smaller peak) shows up at the expected position (channel 12). The large peak is an artifact that is due to the injected tone having too much power (around 20 dB above the noise). Due to time constraints the test could not be repeated with less tone power.

Test observations with On/Ys/Mh (16.12.2016)

A fringe test was arranged with On, Ys % Mh. Prior to the observations the phase noise was checked and confirmed to be in the nominal range of around 30°.

A tone was injected at 740MHz in the receiver cabin and was recorded with the DBBC2 backend in the normal GMVA setup. The line was recovered in the autocorrelation at the expected position.



For details of the fringe finding see: [b163a](#)