Tests in Pittsburgh With Cylinder prototype

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Tests in Pittsburgh

Several test campaigns foreseen:

- ➤ **June 2009**: Correlations between 2 cylinders (4 channels)
- ➤ **November 2009**: North-South beam forming (16 channels)
- ➤ **June 2010**: 32 channels with FPGA correlators (tests)
- ➤ **November 2010**: 32 channels - correlators final version

Strategy

- ➤ Measurements of the visibility between cylinders (a_1a_2*)
- ➤ Tests different firmware (with simple sampling and with FFT on board FPGA)
- ➤ Compare with or without down-conversion.
- ➤ Digital correlator and on the fly correlator with servers

November tests

Hardware:

➤ 32 amplifiers (25-30 db) close to feeds and dipoles

➤ 4 ADC boards (4 channels per board)

➤ 8 fibers - 4 PCI-Express (2 fibers per PCI-Express)

➤ 2 Servers (2 PCI-Express board per server) in the trailer

➤ Optical ethernet connection to the white house

Cas-A

Ch. Magneville
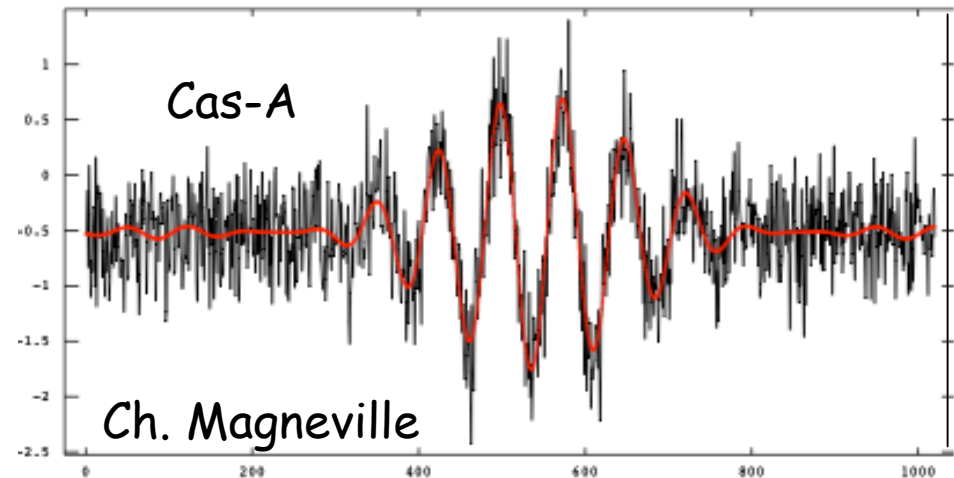
Visibility: interference fringes between 2 cylinder

Tests in June 2010

Goal:

➢ Increase the number of channels 16→32 **(Not enough!!!)**

➢ Tests of FPGA correlator

➢ Significant increase of the read out speed (~1 kHz in November) → gain by a factor 5-10

Three options:

➢ **Option 1:** Compute a few visibilities with a simplified version of the FPGA correlator

➢ Compute all the visibilities on the fly with computer with ethernet connections (Gb ethernet switches)

      ➢ **Option 2:** 4 servers shipped from France

      ➢ **Option 3:** 8 Jeff's servers + (16 optical cables)

Schedule

➢ **Early June** : Tests in Pittsburgh

➢ **Mid-May** : Pre-mission in Pittsburgh to prepare Jeff's server and optical link if option 3

➢ **Early May** : Shipping of electronics (crates, boards and servers?)

➢ Finalize hardware before end of April (ADC boards and analog boards)

➢ Improve the read out speed (development till end of May):

    ➢ Truncation of band at FFT firmware level?

    ➢ At PCI-express level?

    ➢ In acquisition?

➢ Development of acquisition software for option 2 and 3

    ➢ **Who and when?**