

# Laboratory report for the CCTF June 2009



CCTF/09-05

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## Staff

The staff involved in Time and Frequency at VSL consists of 2 persons (approximately 1 full-time person equivalent).

- Mr. Erik Kroon (till October 2008)
- Mr. Erik Dierikx (E-mail: edierikx@vsl.nl, Tel. +31 15 269 1688)
- Mr. Leendert Jol (E-mail: ljol@vsl.nl, Tel. +31 15 269 1628)

## Frequency standards

The VSL laboratory is equipped with 4 industrial Cesium clocks, type HP 5071 with high performance Cs tubes.

## Realization of UTC(VSL)

UTC(VSL) is realized from one of the Cs-clocks in combination with a microphase stepper.

## Link between UTC and UTC(VSL)

The difference between UTC and UTC(VSL) is derived from two methods of measurement:

- Two way satellite time and frequency transfer (TWSTFT)
  - In 2007, improvements have been made on the satellite simulator.
  - In January 2008, polarisation switches have been installed for the satellite change to IS-3R.
  - In August 2008, the MITREX modem has been replaced by a SATRE modem.
  - In September 2008, VSL participated in a TW calibration trip organized by TU Graz.
- GPS measurements
  - Topcon GPS/GLONASS receiver (the GLONASS data is currently not used).
  - Septentrio PolaRX receiver.  
Both receivers produce P3 data.
  - The NBS-type single channel receivers are no longer used.
  - In January 2009, an attempt was made to calibrate the receiver delay of the Topcon receiver with a BIPM travelling receiver. Unfortunately, due to problems with the Topcon receiver, the measurement results are no reliable, so the measurements have to be repeated.

## Time dissemination

Time information is disseminated from the laboratory by:

- NTP server: ntp.vsl.nl
- Modem: 0900 - 6171819
- Weekly Time Service Bulletin, containing measurement information on GPS, DCF77 and radio time signals.

Delft, 4 May 2009  
Erik Dierikx