Update on TWSTFT and Related Activities at PTB

Dirk Piester

19th Meeting of the CCTF WG on TWSTFT, NMIJ, Tsukuba, 12-13 September 2011
PTB’s Time Dissemination Group

A. Bauch
J. Becker
D. Piester
T. Polewka
+
M. Rost (non permanent)
E. Staliuniene (non permanent)
+
A. Hoppmann (partly)
+
T. Feldmann (PhD-student, until October 2011)
+
Guest Researchers 2010/11:
  K. Liang, NIM (6 months)
  W. Yang, GUDT, ChangSha (12 months)
Tasks and Work

Generation of UTC(PTB)
together with Unit of Time Group

Dissemination of Time
Low Frequency Transmitter DCF77
NTP-Server
European Telephone Time Service

Remote Comparisons
GPS
GLONASS
TWSTFT
TWSTFT

**PTB01: link to European and U.S. laboratories**
- satellite: T-11N
- frequencies: Ku-band
- modem: SATRE, 1 MCh/s
- data format: ITU-R TF.1153-2 (individual)

**PTB03: link to Asia and Russia**
- satellite: Intersputnik AM2 available from 2010-10
- frequencies: Ku-band
- modem: SATRE, 2.5 MCh/s @ BW = 2.5 MHz
- data format: ITU-R TF.1153-2 (individual)
  Very recently VNIIFTRI has joined!

**PTB04: spare Ku-band station**
New location for antennae ensemble

One site dedicated for the TWSTFT stations
New location for antennae ensemble

Space for fixed and mobile TWSTFT stations, ACES ground terminal

Site installation ready in early 2011 (planned) but work still not finished as of September 2011...
New location for antennae ensemble
New location for antennae ensemble

2011
New location for antennae ensemble
Time scale generation at remote site via optical fibers using SATRE modems for ACES microwave link ground terminal
New UTC(PTB) realization

Reduced short-term and long-term instability
Better predictability of UTC-UTC(PTB)
Optimum use of resources in the PTB time lab.

New UTC(PTB) realization

- Priority 1 based on fountain data
- Priority 2 based on combination of Cs-beam clocks
- Priority 3 based on CS1 or CS2 data
New UTC(PTB) realization

Comparison of UTC-UTC(k) including July 2011

Comparison of two independent UTC(PTB) realizations
Thank you for your attention!