Measurement campaign[1]

Setup:

- One transmit antenna (Tx) and three receive antennas (Rx_1, Rx_2 and Rx_3).
- Rx_1, Rx_2 and Rx_3 are located at (160.2,-416), (340,-416) and (66.4,543.4) cm respectively.
- We have considered 6 positions for Tx: P_1(104.7,15), P_2(154.5,15), P_3(204.8,15), P_4(244.6,15), P_5(286.3,15) and P_6(336.1,15) cm.
- The generated and the received signals are composed from bursts of periodic pulses.

N.B. In the considered measurement campaign, the generated pulses are applied directly to Tx without being modulated by a carrier frequency. Therefore, the received pulses do not have the same shape as the generated ones.

So, before computing the crosscorrelation between the generated and the received signals, during the estimation of the time-of-flight (TOF), the generated pulses must be shaped to have the same shape as the received ones.

Also, we have to estimate the delays introduced by the cables and by the different electronic components (to remove them from the TOF).

However, in this database version, the calibration is done; so, there is no need to shape the generated pulses and to estimate the nuisance delays. Signals are ready to be crosscorrelated.

Database:

- The compressed file "Calibrated_ascii.zip" contains:
  i) 6 files named "Pj_cal.tsv" (ASCII format) (j=1,…,6); each "Pj_cal.tsv" contains 5 columns: the times axis, the generated signal, and the signals received by Rx_1, Rx_2 and Rx_3 when Tx is located at P_j (see Setup).
  ii) The "readme.docx" file containing the description of the setup and the database.
- In MATLAB, you get data using: x=load('Pj_cal.tsv');

[1] The signals are received using the Agilent DSA91304A Digital Signal Analyzer.