HOMER Autotuner Training Course

This is a tentative comprehensive program proposal with estimated times. The entire schedule, including timings, can be modified, with some topics skipped, other added, all depending on your preferences and the situation as it evolves. The presentation slides are in English.

Day 1

08:00 – 09:00   Preparation, unpacking and installation of equipment (when at client's premises)

09:00 – 13:00   Theoretical Part 1 – Hardware

09:00 – 10:00   Theoretical introduction: Measured quantities and their measurement
- Physical waves, wave variables
- Scattering parameters and derived quantities
- Smith chart
- Measurement of scattering parameters
- Six-port reflectometer

10:00 – 11:30   Homer Analyzer and Homer Autotuner
- Block diagram and operation
- Calibration
- Measurement procedure
- Measurement accuracy
- Handling complex signal waveforms

11:30 – 12:00   Impedance matching
- Basic theory
- Why impedance matching?
- Three-Stub Impedance Transformer

12:00 – 13:00   Three-Stub Autotuner
- Principle of operation
- Basic properties
- Maximal working power
- Optimal matching under complex signal conditions
- Stub swapping problem

13:00 – 13:30   Break

13:30 – 18:00   Theoretical Part 2 – Software

13:30 – 14:30   Firmware
- Important files residing inside Homer.
- Server app and basics of its operation
- Configuration files: defining autonomous Homer operation
- Hom.cfg and Tun.cfg configuration files. Running status, Sending status
- Methods of configuration files modification
- Remote control of Homer: Communication with external controllers (PC, PLC) via RS232 and CAN Bus

14:30 – 16:00   HomSoft Windows Control and Visualization Software
- Help step-by-step
- Menus step-by-step

- Run, Stop Monitoring, Stop Homer
- Saving data. Data logging
- CW, Rectified and Pulsed modes of sampling. Displaying Waveforms
- Homer simulation program HoSim. Customizing HoSim to act as your Homer

16:00 – 16:30   **Break**

16:30 – 18:00   Software installation, upgrades, file manipulation
- Distinction between Firmware and HomSoft and their relation
- Other Windows tools: HomTool, RsMon, CanMon
- Transferring files. Modifying Hom.cfg and Tun.cfg configuration files
- Homer Resets

Homer problems reporting
- Functionality check without additional equipment
- Test bench: Enhanced functionality check

Overview of available literature and other resources

Day 2

09:00 – 13:00   **Practical Training**
Software installation, software upgrading, file manipulation
Data sampling and data logging
Waveform determining
Modification of configuration files

13:00 – 13:30   **Break**

13:30 – 15:00   **Practical Training – Continued**

15:00 – 17:30   **Process Analysis (when required)**
Evaluation measurements on client's installations: determining signal waveforms and reflection coefficients, finding optimum Homer settings, observing, evaluating and possibly solving problems.
Any other work requested.

17:30 – 18:00   **Break**

18:00 – 19:00   **Discussion, Any Other Business**
Discussion about any other problems and questions
Conclusion

Equipment to be Prepared in Advance

If the course is held at client's premises, these are the main items which should be prepared in advance so that no time is lost upon our arrival.
- Conference room
- Desk for our equipment
- Data projector + data cable with Display Port or VGA connector at PC end.

The attendees can use their own PCs for practical training. They may wish to pre-install the latest version of HomSoft (downloadable from http://s-team.sk/software_download.php), or we can guide them doing so as the first step of the practical training.