Defined test sequence in VoCAS. The efficient and flexible software enables an objective and fast quality assessment of voice control systems under realistic and reproducible test conditions.

**Short Description**

VoCAS allows the quality evaluation of Automatic Speech Recognition (ASR) systems in reproducible conditions. It offers the following functions:

- Reproducible execution of test sequences
- Preparation of audio file databases:
  - Record files with integrated recorder
  - Easy import of existing files with import wizard
  - Add meta-data to audio sources by setting values for different attributes
- Flexible definition of test sequences:
  - Template definition
  - Variations via parameter sets (e.g. different background noise)

Test sequence parameter sets can determine the following values:

- Playback settings
  - Level at mouth reference point
  - Lombard effect (e.g. ITU-T P.1100)
- Background noise settings
  - Noise signals (e.g. from 3PASS flex, 3PASS lab)
  - Noise levels
- Different audio sources by changing meta data values
  - e.g. “Eiffel Tower, Paris” or “Airport Cologne” for the attribute “Address”
- Result acquisition, presentation and export
- Integration into HEAD acoustics product ecosystem:
  - labCORE or MFE VI.1 incl. mouth equalization, playback, monitoring
  - Remote control of 3PASS lab, 3PASS flex, HAE-BGN or HAE-car

**Applications**

- Flexible, objective and reproducible evaluation of the performance of Automatic Speech Recognition (ASR) systems
- Benchmarking of different ASR systems or ASR software versions

**Features**

**Audio source databases:**

- Assisted import of audio files (e.g. as *dat, *.wav, *.raw or *.mp3) with automatic tagging using filename/folder structure, information in HDF header or by script
- Manual tagging also possible
- Table overview of tagged audio files with attribute columns and values
- Assisted recording of audio files for individual tests with immediate viewing of time data and assignment of tags
- Processing of imported or recorded audio files (Level adjustment RMS or ASL, trimming, splitting, FIR/IIR filtering)
- File storage in SQLite databases

**Hardware features:**

- Control of labCORE or MFE VI.1 front end incl. mouth equalization, playback, monitoring
- Remote control of 3PASS lab, 3PASS flex, HAE-BGN or HAE-car

**Test sequence features:**

- Define playback configurations for different levels and Lombard effect
- Background noise configurations for different types and/or levels
- Automated modification of test sequence by means of parameter sets with placeholders
- Python scripts with simple API for further automation of testing process
- Reproducible playback of sequences
- Result acquisition, presentation and export to Microsoft® Excel

**System Requirements**

The PC (not included in the delivery) on which VoCAS is installed should meet the specifications required by Microsoft® for the operating systems Windows® 7 Professional, Windows® 8/8.1 Pro or Windows® 10 Pro (English or German version, including all current service packs).
### Hardware

For playback via artificial mouth of head measurement system (HMS) and binaural feedback from device under test using ear microphones of HMS:

- **labCORE (Code 7700)**, modular multi-channel front end with labCORE modules:
  - **coreBUS (Code 7710)**, I/O Bus Mainboard
  - **coreOUT-Amp2 (Code 7720)**, Output Module, Power Amplifier (2 Channels)
  - **coreIN-Mic4 (Code 7730)**, Input Module, Microphone (4 Channels)
- Alternatively: **MFE VI.1 (Code 6462)**, analog USB measurement front end
  - **HMS II.3-33/-34 (Code 1230.1/2)** or **HMS II.6 (Code 1389)**, artificial head measurement system with pinna simulator

For level measurement and mouth equalization:

- **Reference microphone**

For simulation of realistic background noise scenarios one of the following background noise simulation systems depending on the device under test:

- One of the following background noise simulation systems:
  - **3PASS lab (Code 6990)**, for testing at fixed microphone positions (e.g. mobile phones), including necessary system components (cf. separate data sheet)
  - **3PASS flex (Code 6995)**, for testing multi-microphone systems, microphone arrays, beamforming microphones, including necessary system components (cf. separate data sheet)
  - **HAE-BGN (Code 6970)**, automated equalization for background noise simulation in labs, including necessary system components (cf. separate data sheet)
  - **HAE-car (Code 6971)**, automated equalization for background noise simulation in car cabins, including necessary system components (cf. separate data sheet)
  - control over TCP/IP or USB adapter for remote control CUU I

### Standard Delivery Items

**VoCAS (Code 6985)** comprises the following components:

- Setup DVD, including demo project and demo audio database
- Dongle (USB)

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