

What's new in ACQUA 6.1.100

Significant changes since 6.0.200

The release of ACQUA 6.1.100 includes the newest *lab*CORE firmware 3.8.20. Full functionality of all features requires the installation of this firmware.

New features

Analyses

MDAQS – MultiDimensional Audio Quality Score (ACOPT 36)

- > Update to version 1.1. This update improves the performance for the distortion attribute by integrating new analyses and a retrained model. Timbre and immersiveness are unchanged in comparison to version 1.0. Furthermore, the MDAQS calculation runs twice as fast as version 1.0.

EQUEST – Echo Quality Evaluation of Speech in Telecommunications (ACOPT 29)

- > EQUEST has been standardized according to ETSI TS 103 802. Calculations according to the previous algorithm (Classic) are still possible.

3QUEST – 3-fold Quality Evaluation of Speech in Telecommunication according to ETSI TS 103 281 (Model A) (ACOPT 35)

- > Mapping function is now available according to ETSI TS 103 281 as well as 3GPP TS 26.132.
- > Automatic level correction: If enabled, the value for the level correction is determined on the difference between the active speech level according to recommendation ITU-T P.56 of each recording and the optimum listening level of 73 dB_{SPL}.

STI – Speech Transmission Index (ACOPT 27)

- > Analysis according to STI standard IEC 60268-16:2020 is available. IEC 60268-16:2020 only provides for STIPA. The excitation signal levels in the 125 Hz and 250 Hz bands have been reduced compared to older versions. In this version, it is also possible to specify an ambient noise spectrum to correct the MTF. This must be available as an octave spectrum in an HDF file.

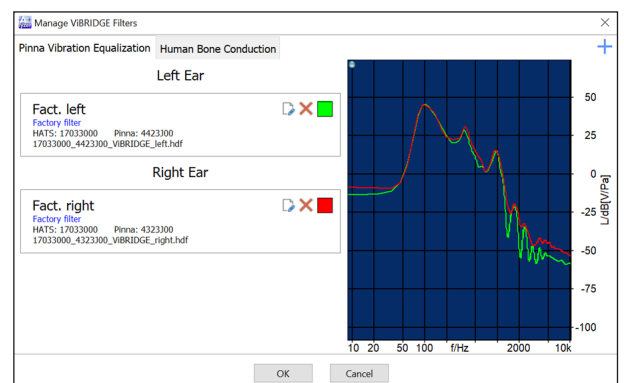
LEAP – Listening effort prediction from Acoustic Parameters (ACOPT 38)

- > Calculation according to the LEAP Model is now available. The model enables predicting the listening effort of a degraded speech signal without requiring a clean reference file.

Hardware

ViBRIDGE

- > For information on operating ViBRIDGE, please refer to the application guide [ViBRIDGE application in ACQUA](#).
- > ViBRIDGE equalization filters can be imported and managed via the **HATS settings** in **Workplace settings**.



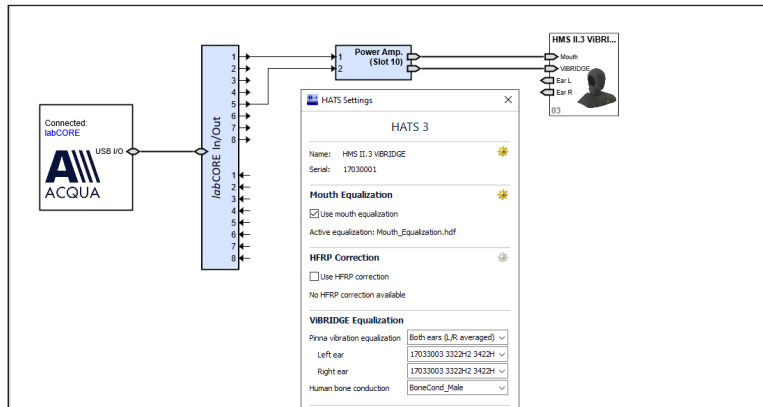
The new functions are available under the link Manage ViBRIDGE filters. The link is only visible for HATS that can be equipped with pinna type 4.4.

> **Manage ViBRIDGE filters** enables to import, view, rename or delete ViBRIDGE filters. It is possible to import provided filter packages (*.veq) or single filter files (*.hdf). The provided filter packages (*.veq) include all necessary filters for one HATS. There are two types of filters:

- Pinna vibration equalization: Equalization for one HATS with one or two allocated artificial ears. The filters are tagged by serial numbers.
- Human bone conduction: Filter files for the average human bone conduction (male and female)

Manage ViBRIDGE filters manages the ViBRIDGE of all HATS. Therefore, filters for different HATS can be uploaded via any **HATS settings**.

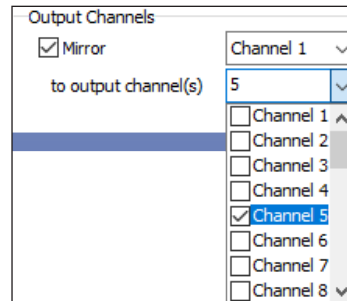
> The **HATS** block in the **Hardware Configuration** has an additional pin for connecting the **Power Amplifier** block from *labCORE* to the HATS block. This pin is only active if ViBRIDGE filters have been configured in the relevant HATS block.



> The settings of the **HATS** block contain a section for allocating ViBRIDGE filters. Filters can be selected for the Human Bone Conduction and left/right ear. The ViBRIDGE pinna filters for the left and right ear are different. However, as both ViBRIDGE ears receive the same signal, an averaged filter is used when both channels are used. If only one ear is to be used, only one ear should therefore be selected with Pinna vibration equalization.

The settings for ViBRIDGE are only available in the **HATS** block settings if there are ViBRIDGE filters applicable for the HATS.

> In the Measurement settings, you can now configure that a playback channel can be mirrored to other channels. This makes it possible to play back the mouth signal simultaneously on the HATS speaker and the ViBRIDGE actuator in the pinna.

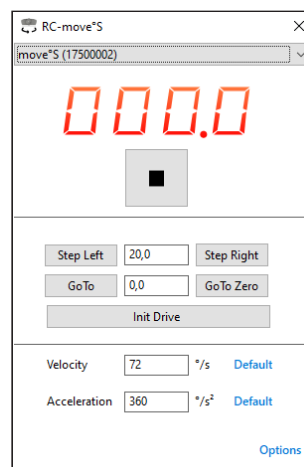


move°S

> General user interface for operating move°S available (**ACQUALyzer > Settings > move°S**).

> move°S rotates the artificial head very quiet. Thus, it is suitable for turning the head to stationary operating positions as well as turning the head during running measurements. The user interface provides features to:

- Turn the head to a specific angle (position) in both directions.
- Turn the head according to a specific angle (distance) in both directions.

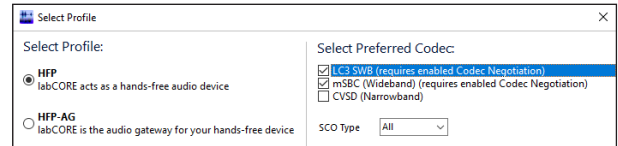


- Specify the desired velocity and acceleration of the head rotation.
 - Run an initialization drive.
- > New column in ACQUA project tree for move°S for allocating head positions to measurements.

labCORE

Bluetooth®

- > New codec HFP-LC3 available with *labCORE* option *coreBT2-LC3-HFP* (Code 7785).
- > HFP profile: Several codecs are selectable simultaneously.
- > The new *labCORE* extension *coreBT2LE-IMP* (Code 7810) enables the *labCORE* hardware platform to impair packets of Bluetooth audio streams for evaluating the error processing of appropriate devices supporting Bluetooth LE Audio. Currently it is exclusively implemented in the Auracast™ broadcast audio profile.



- > Battery status of the connected Bluetooth device will be indicated if the device supports the required protocol.

VoIP

- > SIP and RTP history: Entries can be deleted.
- > Network Impairments: Packet duplication.

Firmware

- > When starting, ACQUA checks the firmware of connected hardware and suggests a firmware update to the firmware version provided on the DVD. If each hardware device is up-to-date, the update suggestion is skipped. For this purpose, the firmware files from the DVD are included in the installation.
- > Manual installation of firmware for hardware is available via **ACQUALyzer > Help > Connected Hardware**.

Other

- > *labCORE* now supports 64-bit ASIO driver.
- > Each **Signal Generator** block can generate up to four frequencies at once.
- > Calibration data that is detected when starting ACQUA will be imported and activated.

Hardware Configuration

- > Connections to inactive pins will be saved. The connections do not have to be renewed after decreasing the number of channels and going back to the previous configuration.

SMD Features

SMD Type: Delay (cross correlation)

- > Users can specify a minimum value for the correlation (**Min. valid correlation**). If the correlation falls below this value, ACQUA cancels the measurement. If the correlation is too low, there is probably a problem with the measurement setup.

Special features

Compensate loss

- > By default, the set loss applies to all analyzed channels. It is now possible to exclude channels. Only channels that are also specified in the field **Loss in channels** are compensated.

Compensate delay

- > By default, the set delay applies to all analyzed channels. It is now possible to exclude channels. Only channels that are also specified in the field **Delay in channels** are compensated.

Needs HFRP correction

- > Checks for HFRP active correction. ACQUA triggers a warning message if there is no active HFRP correction for either at least one speaker or all speakers.

Show source

- > Supports applying multiple channels. If only one channel is selected, the destination channel is selectable from a drop-down list. If selecting multiple channels, they will be added as new channels to the recording (**Append**).

Channel combination

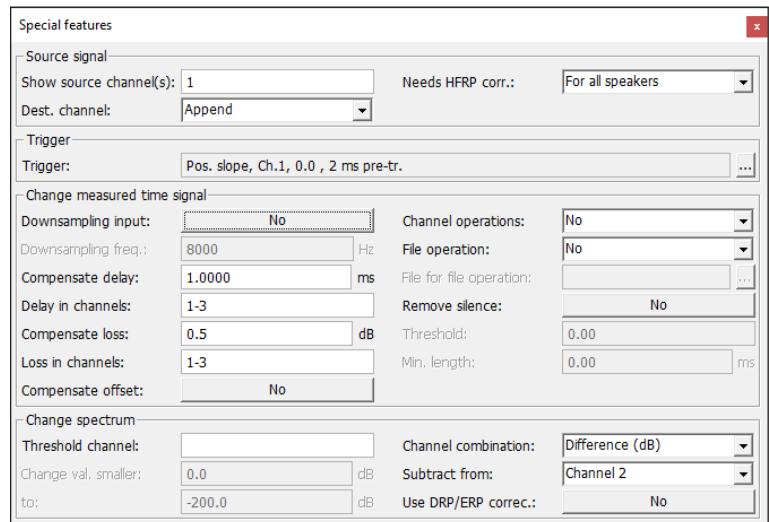
- > Supports multi-channel application now. All channels determined for analysis are used. Subtraction from a channel is enabled by the new property under **Channel combination: Difference (dB)**. The property **Subtract from** specifies the channel which is the minuend in the subtraction.

Trigger

- > All channels are now applicable for using triggers. This enables to use separate channels for measurement and trigger. Therefore, trigger channels may include e.g., filters that shall not affect the measurement.

Record extension

- > In mode Fixed, ACQUA uses the maximum value of **Fixed value** in **Measurement settings** and the maximum value of the **Delay compensation** in the SMD. This ensures that no signal components are cut off.



Database/Report

- > Large databases open faster.
- > The context menu of the loop mode opens immediately, even if there are many settings.
- > The project tree search function can search for results with status **Not OK (not required)**.
- > The **Report Manager** has a new column: **Status**. It can be sorted such as the other columns.
- > The project path of the database is copied by clicking on it in the ACQUA status bar at the bottom.

Miscellaneous

- > The preferred physical unit for sound pressure may be changed from dB_{Pa} to dB_{SPL} in **Measurement settings**.
- > DRP/ERP correction for interactive or manual analyses via ACQUAlyzer can be configured for each canal. It provides the corrections according to recommendation ITU-T P.57 as well as customized ones from the **Workplace settings**.
- > Improved processing of digital zero time signals. Before, some analysis values of the time signal were confusing, such as the signal level. So far, the results suggested a zero signal, but the correct value in this case would be $-\infty$. The result in such cases will be < -200 dB from now on.
- > There is a peak indicator in the level meter of measurements.
- > In **Project Options**, there is a new possibility to run an assigned script after the execution of selected measurements (**Run After Selected Measurements Done**).
- > The signal level calculation in ACQUAlyzer is possible, even if there is no spectrum. In this case, ACQUAlyzer calculates the level from the time signal. However, weighting and limitation of the frequency range are not possible then.
- > Automatic search for MFE IV during the start of ACQUA has been deactivated since it is too time consuming. Customers still using a MFE IV shall contact HEAD acoustics support department.

Significant bugfixes

- > Faulty time limited dongles are reported as faulty when starting ACQUA instead of reporting 'No license'.
- > The ACQUA GUI remains responsive during driving HHP IV. This prevents error messages (**System call failed**) in ACQUAlyzer after longer drives e.g., reaching an application force.
- > Shared results of a measurement object were not visible if the shared measurement object was hidden.
- > Enabled/disabled SMDs were not viewed correctly if text SMDs were hidden.
- > Copying of a measurement object via **Project Compare** did not include most files of the file collection.
- > New single value state Not OK (Not Required) is presented correctly in the database and the correct value is displayed in the project tree.
- > Sometimes a single click would open the settings of a block in the Hardware Configuration.
- > POLQA interface: The switch Show MOS & Delay vs. time had no effect. The curve was never displayed.
- > Trigger level ignored the input calibration. This led to incorrect thresholds values.

- > Corrected display of the ACQUAlyzer menu when moving to a monitor with different scaling.
- > Occasional crashes in Play & Record fixed.
- > Resolved lagging in the input channel selection of the Play & Record dialog.
- > If a measurement was canceled in the Pre-Measure Info, a subsequent cancel script did not have access to the correct set of variables.