

acoust IQ

MÜLLER-BBM
—— INNOVATION LAB

User Manual
(Version 2.0, August 2026)
Portable sound level meter with digital microphone and iPhone

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1 Introduction

Thank you very much for using acoust IQ.

This documentation describes the complete acoust IQ lineup: acoust IQ basic, pro, and live. The capabilities build on one another and are marked accordingly. acoust IQ pro adds a cloud component to the measurement capabilities of the basic version. acoust IQ live allows acoustic measurements to be performed remotely.

In principle, the acoust IQ app enables sound levels to be measured with an iPhone (15 or newer) or iPad (with USB-C port) in combination with a connected Class 1 or Class 2 digital microphone. For simplicity, only the iPhone is referred to below. The microphone data is stored on the iPhone and can be exported together with other recorded data, such as position or measurement documentation. In the pro and live versions, the data can be uploaded to a cloud backend and further processed there.

The most important single-number values of the calculated sound pressure levels and the 1/3-octave spectrum are also shown on the display.

The figures in this documentation may differ depending on the device or device configuration (e.g. language, font size, operating system version) or device orientation, and should therefore be regarded as supporting explanations.

2 Product Components

The measurement system consists of the following components:

- iPhone (15 or newer) or iPad
- Protective case with microphone mount (Quadlock)
- $\frac{1}{2}$ " MKS225 measurement microphone capsule and Microtech Gefell MV240 digital preamplifier with built-in analog/digital converter
- or alternatively UMIK-2 (miniDSP)
- Connection cable between microphone and iPhone (4-pin Lemo on the microphone, USB-C on the iPhone) for power supply via the iPhone and for digital measurement data transfer from the microphone to the iPhone (three different lengths: 0.15 m, 2 m, 5 m).
- Windshield (recommended)



Figure 2.1: Product components: connection cable, measurement microphone, microphone capsule, and windshield. Source: www.microtechgefell.de

2 Product Components



Figure 2.2: Product components: microphone in mount, iPhone in protective case, short connection cable.

3 Installing and Setting Up the App

- If you want to manage the license through Apple and an in-app purchase, download [acoust IQ](#) (link: [acoust IQ](#)) from the Apple App Store and install it on your smartphone or tablet. Note: only [acoust IQ basic](#) is available for this billing method.
- If you prefer to purchase on invoice or want to use the cloud functions of [acoust IQ pro](#) or [live](#), download [acoust IQ enterprise](#) accordingly (link: [acoust IQ enterprise](#)). To obtain a license, please contact us (Section 3.1).
- Open the app. Enter your login details if required.
- Make sure that your smartphone battery is charged. With the microphone connected, the operating time with a fully charged battery is approx. 4 hours.
- Attach the microphone in the mount.
- Connect the external digital microphone (Class 1) to the USB-C input on the iPhone.

3.1 License

To use the full functionality of [acoust IQ](#), an appropriate license is required. You can use a monthly license or an annual license via in-app purchase. For both options, the Apple App Store provides simple download and in-app purchase. For the in-app purchase, a payment method must be stored in the Apple account (e.g. credit card). To obtain a license key on invoice and/or to use the cloud functions, please contact:

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3 Installing and Setting Up the App

An overview of available licenses and active subscriptions can be found in acoust IQ in the settings (Chapter 6) under “License & Subscription” (Figure: 3.1). A subscription can be purchased here via the Apple App Store. In acoust IQ enterprise, this is handled through the cloud backend.

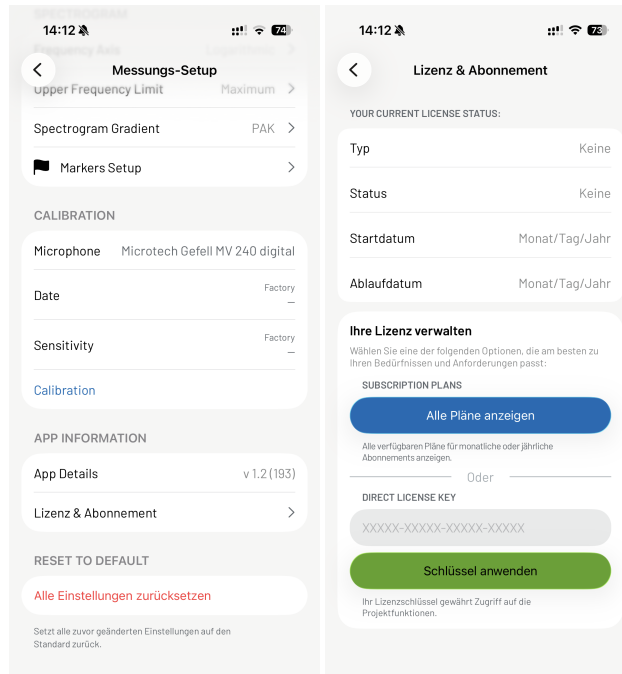


Figure 3.1: Information on licenses and subscriptions.

3.2 Positioning the Measurement Microphone

The sound level meter should be placed away from shielding, reflecting, or absorbing objects. In a diffuse sound field, the measured sound pressure levels are reduced by absorbing objects. In a free sound field, the measured sound pressure levels may be increased by reflecting objects.

3.3 Mounting the External Digital Microphone

The following precautions must be observed when mounting the measurement microphone:

- Keep dust and foreign objects away from the microphone diaphragm. Do not touch the diaphragm, as it is very sensitive.
- Carefully slide the microphone into the mount on the smartphone.

3 Installing and Setting Up the App

- Connect the connection cable (4-pin Lemo connector) to the microphone until the connector locks into place.
- Connect the USB-C connector to the smartphone until the connector locks into place.

3.4 Mounting the Windshield

For outdoor measurements or indoor measurements with air movement, push the windshield onto the microphone as far as it will go.

3.5 Measurement Procedure with Remote Microphone

The measurement microphone can be positioned away from the smartphone by connecting a 2 m or 5 m connection cable and mounting the microphone on a microphone stand.

4 Home Screen

After opening acoust IQ, the home screen is shown first. It consists of various tiles and a green button for starting a measurement directly.

- Files: Access saved measurements and create a project and folder structure, including managing metadata and reports (Chapter 5).
- Documentation: Access this documentation with the option to share it or print it if required.
- Settings: relevant settings for measurement, licenses, and the calibration option (Chapter 7).
- Start new measurement (green button): This is the direct route to the measurement or the measurement preparation. When a measurement is recorded, the project structure is automatically created in Files.

Depending on the license, additional tiles may be displayed that provide access to further functions.

4 Home Screen

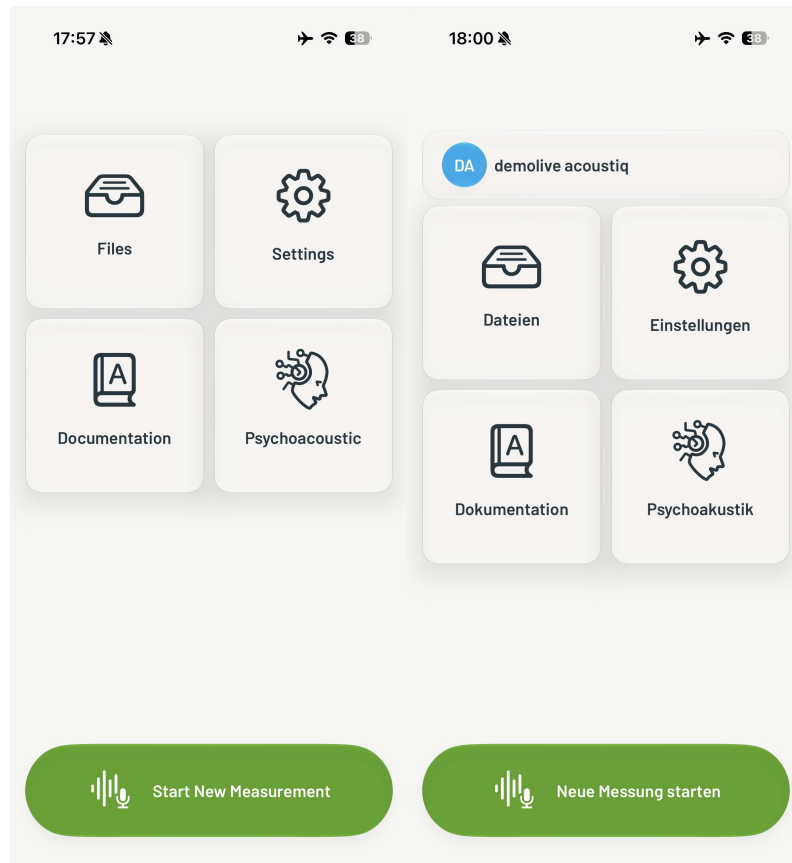


Figure 4.1: The home screen of acoust IQ and acoust IQ with cloud.

5 Files and Folder Structure

The basic directory structure in acoust IQ follows the principle: Project - Task - Measurement.

- A project is represented by a folder at the top level (Figure 5.1a). New folders or tasks can be added using the  icon in the lower button row.
- A project can contain any number of tasks (Task(s)) (Figure 5.1b).
- The individual measurements are then stored in these tasks (Figure 5.1c). The actions described below (especially from Chapter 8.5) for editing the measurement data can be reopened at any time via the subentries (audio data, location, images, and documentation). Different icons indicate whether a measurement has already been recorded as a psychoacoustic measurement.
- A breadcrumb navigation is located above the directory list to show the position in the directory structure. It can be used to jump back quickly to a location.
- A project or folder is optional; all other structures are required and are created automatically when a measurement is started quickly.
- In acoust IQ, tasks can also be moved at any time later. To do this, open the context menu via the three dots  and select “Move to”  (Figure 7.1d).
- In the context menu, tasks or measurements can also be shared , renamed  or deleted  (Figure 5.1d).
- In acoust IQ, tasks and measurements can be deleted immediately by swiping left.
- At the bottom edge of the screen there are buttons for creating a new folder or task and adjusting the sorting.
- The green “Start” button takes you directly to measurement preparation. A measurement is then stored at the corresponding location in the directory structure. If necessary, a new task is created automatically.
- The measurements can be sorted using the arrow button  by name, date, or length.

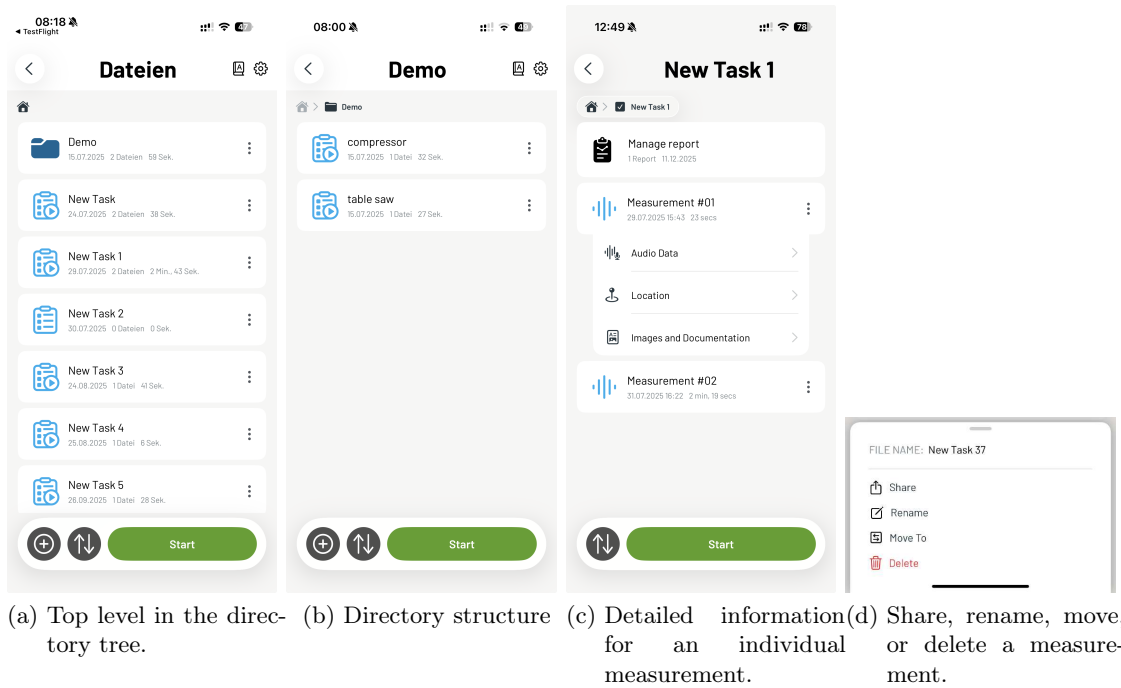


Figure 5.1: Projects, tasks, and measurements in the directory structure.

5.1 Saving, Sharing, and Deleting a Measurement

- If no task was created manually in advance, a new task  is created automatically. The date, number of files, and total length of the measurement are shown in the tab of the new task.
- The context menu is opened via the three dots . The available file operations mentioned above are located here (Figure 5.1d).

5.1.1 Sharing Measurements and Tasks

- The “Share” button opens a selection window in which the respective areas can be deselected or selected (Figure 5.2a):
- Export audio: Here you can choose between “Absolute” and “Normalise”.
 - Absolute: Exports the recording as an absolute sound pressure curve in Pascal (WAV file with 32-bit float values, sample value $1.0 \triangleq 10 \text{ .Pa}$). This ensures that the level is displayed correctly in the Müller-BBM Vibroakustik Systeme GmbH software “PAK”.
 - Normalise: Raises the level of the recording to make it easy to listen to the measurement. The audio data is normalized to a digital peak level of -3 dBFS.

5 Files and Folder Structure

- Photos: Photos assigned to the measurement (maximum 8)
- Description: Measurement documentation for the measurement
- Ignore areas: Excluded areas of the measurement
- Markers: Marking of interfering noise
- Locations: Position data

The data is exported as an archive using Export and Share.

- Measurements are compressed as a *.zip file and can be shared, for example, via AirDrop, email, Messages, etc. (Figure 5.2b).
- Please note that longer measurements contain a large amount of data and some services are less suitable for this.
- For Apple ® users, data export via AirDrop and iCloud is suitable.
- A connection to Microsoft ® Windows products can be established, for example, via the OneDrive cloud or Dropbox.

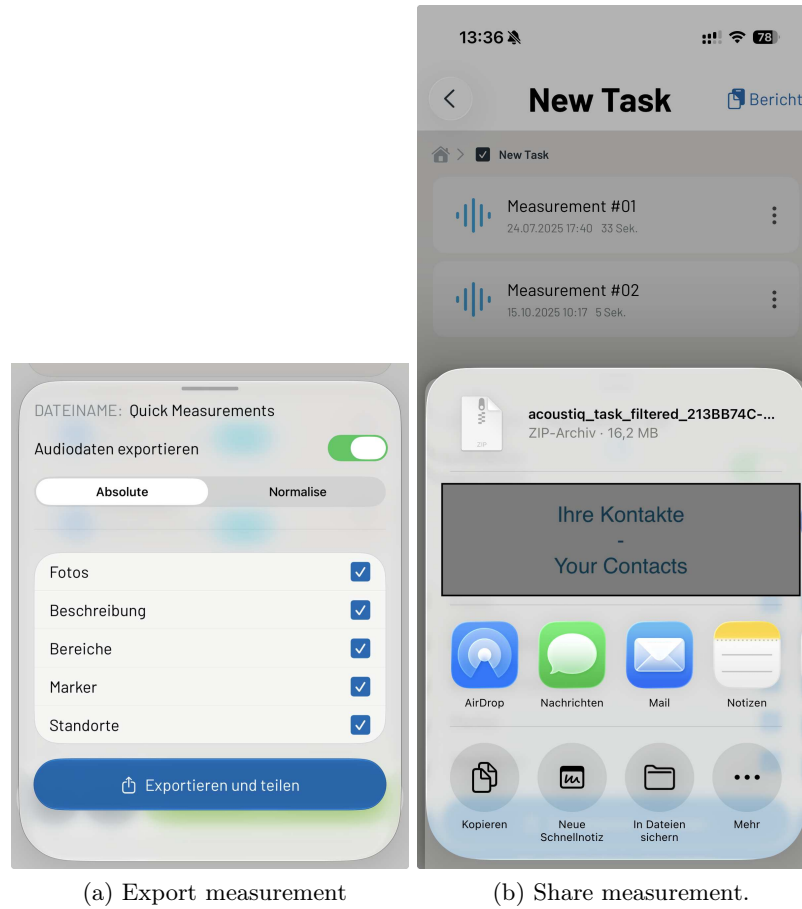


Figure 5.2: Exporting and Sharing Measurements

5.2 Synchronizing Measurements with the Cloud

For acoust IQ pro and live, the measurement data can be uploaded to the cloud and processed further there (see Chapter 11). The individual functions are generally available as in acoust IQ. Moving measurements is currently not possible. Measurements can be downloaded from the cloud  and saved to the cloud .

The different file and folder types and synchronization states are indicated by corresponding icons. The types to distinguish are project, task, measurement, psychoacoustic measurement, and report:

-  Project; data available only in the cloud
-  Project; data available only on the end device
-  Project; data synchronized and available in the cloud and on the end device

5 Files and Folder Structure

	Project; no data, only file structure available
	Task; data available only in the cloud
	Task; data available only on the end device
	Task; data synchronized and available in the cloud and on the end device
	Task; no data, only file structure available
	Measurement; data available only in the cloud
	Measurement; data available only on the end device
	Measurement; data synchronized and available in the cloud and on the end device
	Measurement; no data, only file structure available
	Psychoacoustic measurement; data available only in the cloud
	Psychoacoustic measurement; data available only on the end device
	Psychoacoustic measurement; data synchronized and available in the cloud and on the end device
	Psychoacoustic measurement; no data, only file structure available
	Report; data available only in the cloud
	Report; data available only on the end device
	Report; data synchronized and available in the cloud and on the end device
	Report; no report available
CLOUD	Data is uploaded into the cloud
CLOUD	Data is stored in the cloud
PHONE	Data is downloaded onto the device
PHONE	Data is stored on the device

6 Settings

In the settings, all relevant settings for measurement, the appearance of the figures, and licensing can be configured (Figure 6.1). The microphone calibration can also be checked and performed from here (see Chapter 7). The menu can also be accessed via the gear icon  at the top right from various points in the application (e.g. Files, measurement preparation).

6.0.0.1 Time and Frequency Weighting

Time weighting (Figure 6.2a):

- F (FAST, = 125 ms)
- S (SLOW, = 1000 ms)

Frequency weighting (Figure 6.2b):

- A-weighting
- C-weighting
- Linear (unweighted)

6.0.1 Measurement duration: On/Off

Each measurement is divided into time blocks of no more than 30 minutes. This enables meaningful display and editing of the measurement data directly on the device. When switching to a new file, all data continues to be saved without loss.

On: If this limit is exceeded, a new measurement is created automatically so that the measurement can continue.

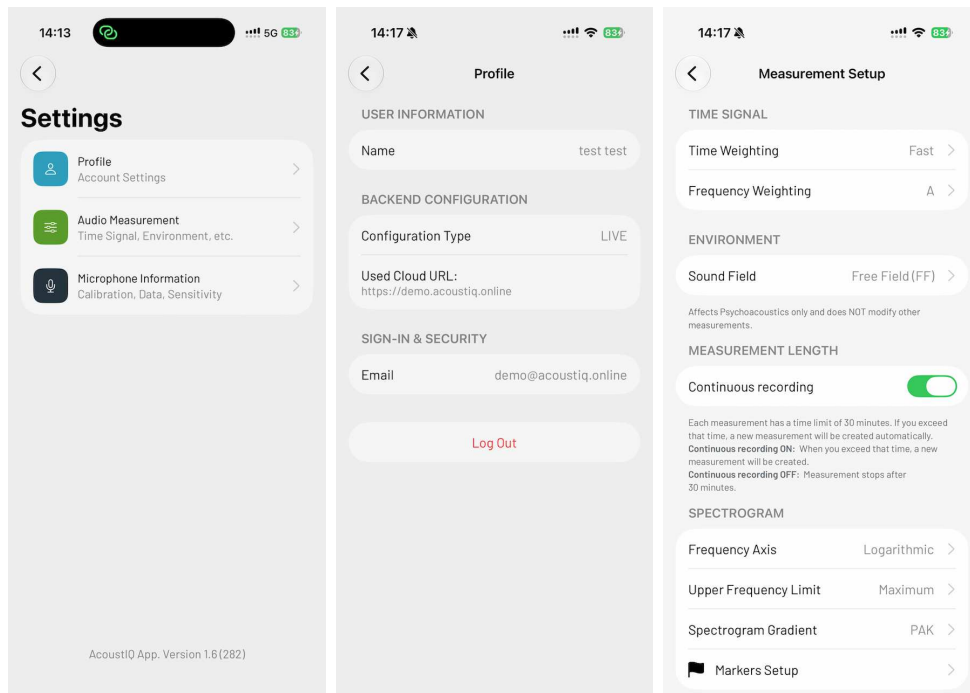
Off: The measurement stops after 30 minutes.

6.1 Spectrogram

Frequency axis (Figure 6.3a):

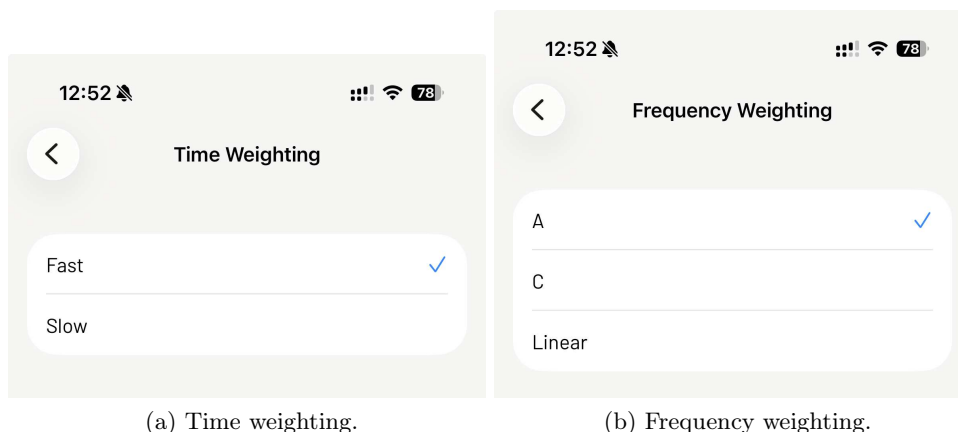
- Linear
- Logarithmic

6 Settings



(a) Submenu in the settings. (b) Profile overview for acoust „Profiles” are visible only in IQ pro and live. acoust IQ pro and live.

Figure 6.1: Settings menu for profile, display, recording adjustment, and microphone.



(a) Time weighting. (b) Frequency weighting.

Figure 6.2: Signal settings.

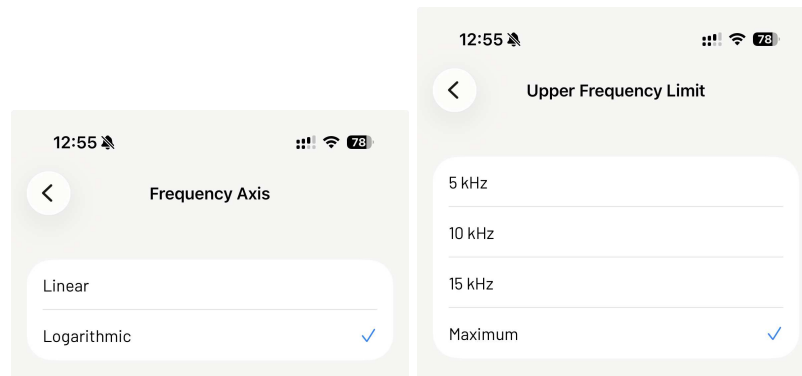
Frequency limit (Figure 6.3b):

- 5 kHz
- 10 kHz
- 15 kHz
- Maximum 24 kHz

Spectrogram color gradient (Figure 6.3c):

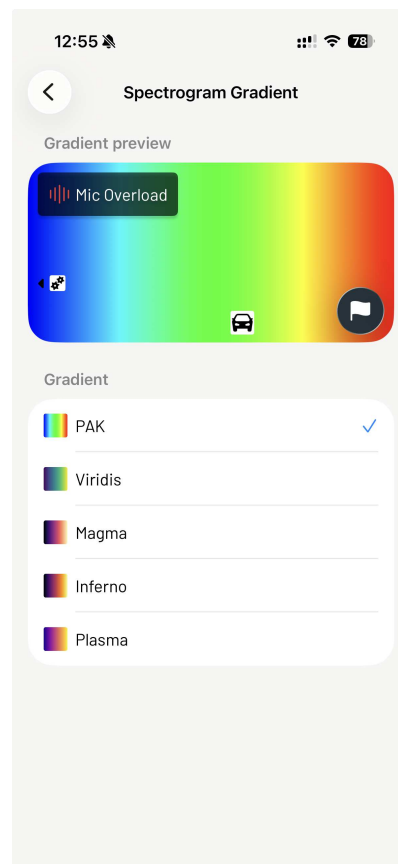
- PAK
- Viridis
- Magma
- Inferno
- Plasma

6 Settings



(a) Frequency axis

(b) Frequency limit



(c) Spectrogram selection

Figure 6.3: Settings

Markers Setup (Figure 6.4):

Markers Setup shows an overview of several markers. The icons can be individually renamed and replaced using the Edit function (Figure 6.4a).

6 *Settings*

A delay range can be specified in the lower “Delay Settings” area. This is used to set the marker before the button is pressed, according to the selected time. This allows the individual reaction time to an event to be taken into account.

Default Delay: -3 sec, -1 sec, 0 sec: In “Live measurement”, the marker is set with a delay (Figure 6.4c).

Durations Preset: 0 to -5 sec: Selection of max. 3 “Default Delay” values (Figure 6.4d).

6 Settings

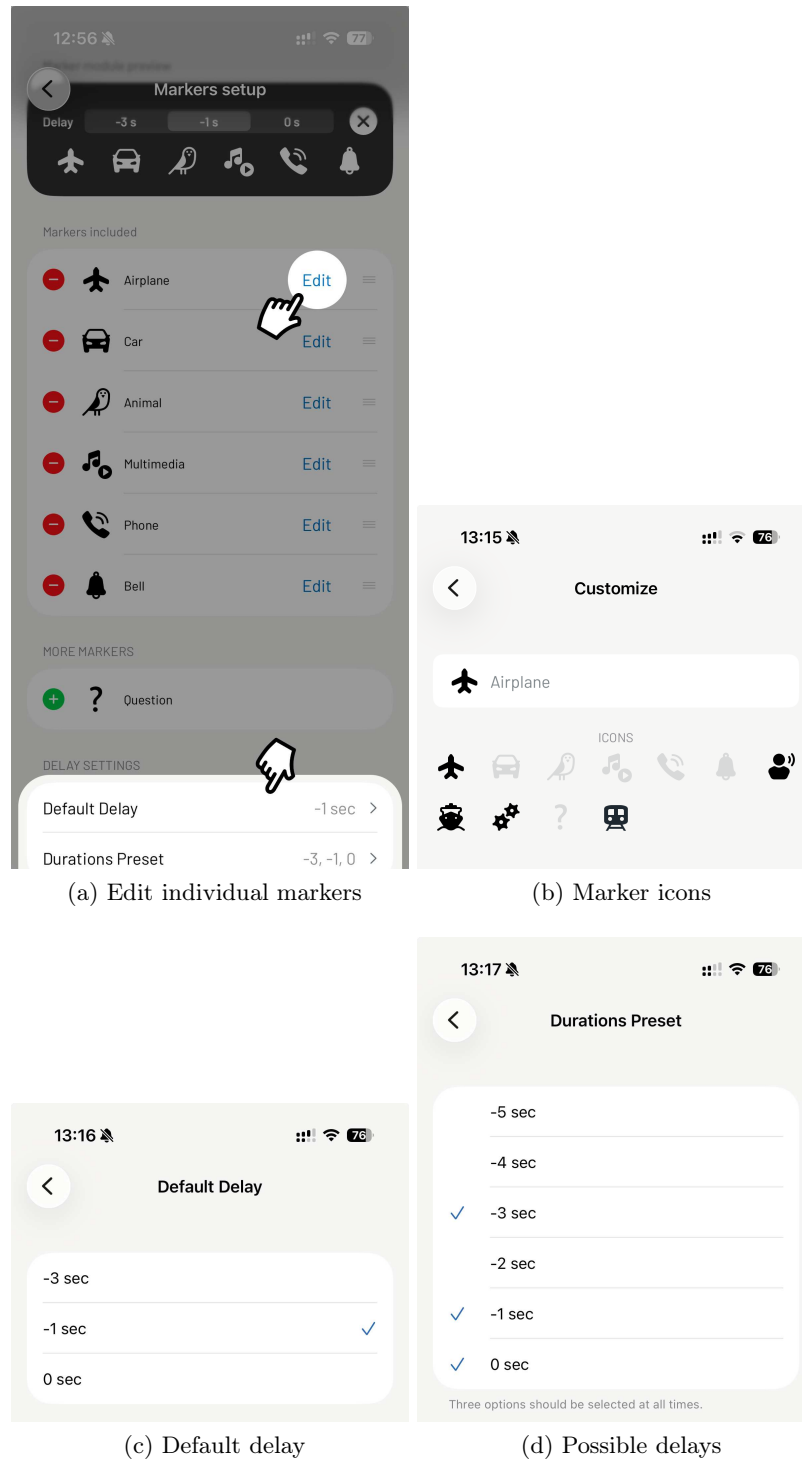


Figure 6.4: Marker Setup menu

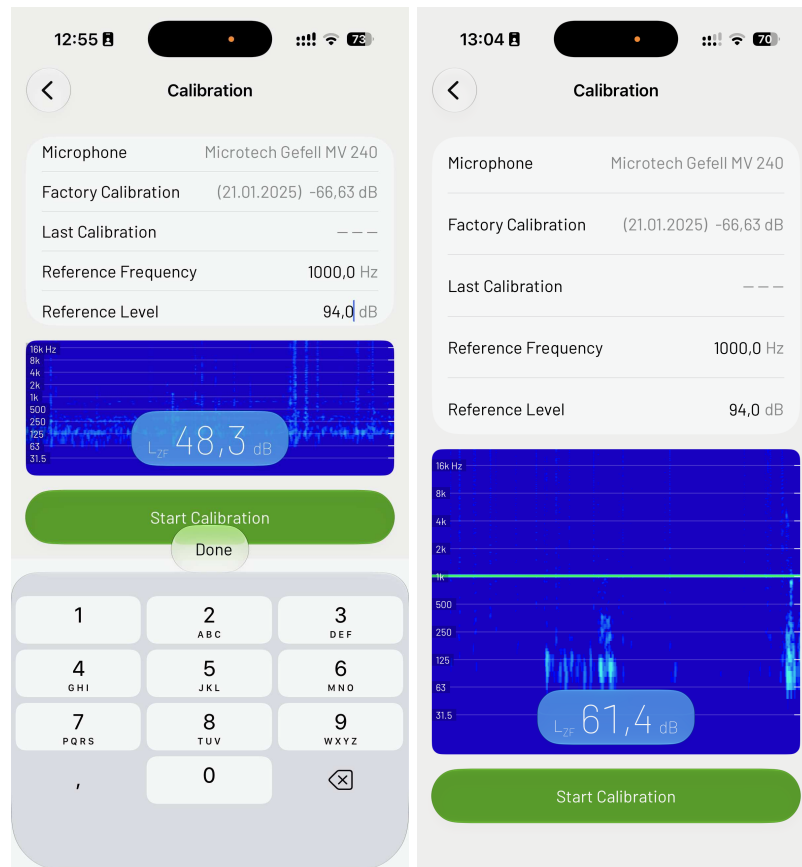
7 Calibration

To check function and ensure high measurement accuracy for sound level measurements, we recommend performing a check with an acoustic calibrator before taking a measurement.

Perform acoustic calibration as follows:

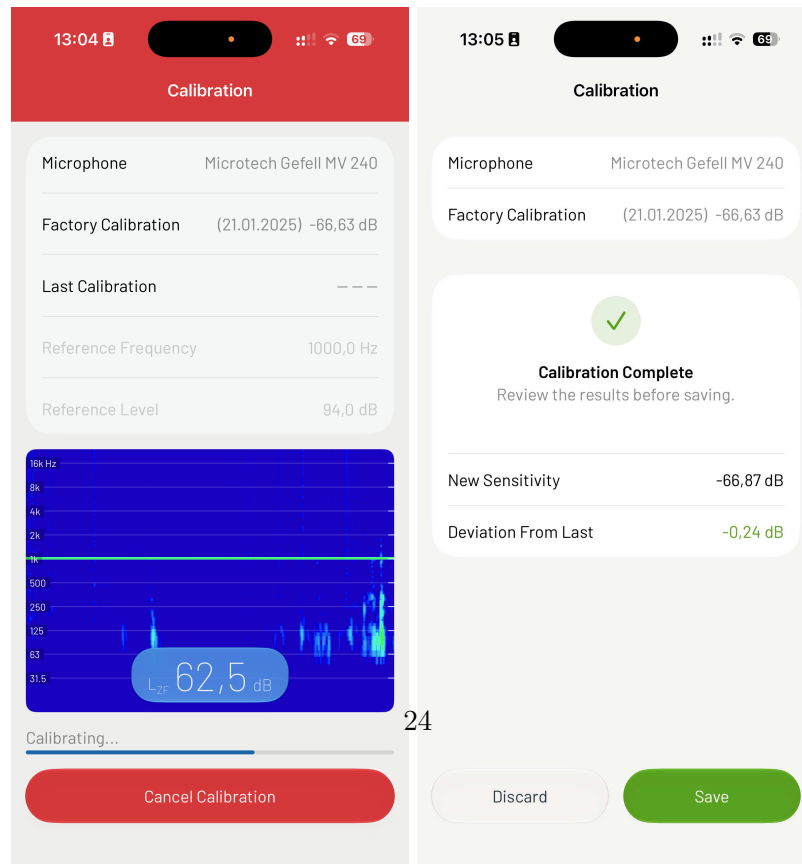
1. Open the microphone menu item in Settings and select calibration.
2. Keep away from loud sound sources during calibration.
3. Place the calibrator on the microphone and switch on the test tone on the calibrator.
4. Place the calibrator with the microphone and smartphone on a stable surface.
5. If the frequency and level of the calibrator differ from the default values, the values must be entered in the designated fields. The frequency can be entered between 125 Hz and 4000 Hz, and the level between 90 dB and 130 dB (Figure 7.1a). Note: The frequency and level entries must be confirmed with “Done” (“Done”).
6. Start the calibration with the green “Start” button (Figure 7.1b).
7. Calibration can be canceled with Cancel (Figure 7.1c).
8. Complete the calibration with the green “Save” button (Figure 7.1d).

7 Calibration



(a) Enter the frequency and level of the calibrator.

(b) Starting calibration.



(c) Calibration in progress.

(d) Saving the calibration.

Figure 7.1: Performing calibration.

7.1 Displays in the calibration menu

1. Microphone: designation of the connected microphone
2. Date and time: last calibration
3. Microphone sensitivity: dB

7.2 Plausibility check

The supported measurement microphone (Microtech Gefell MV240/MKS225) has a sensitivity of approximately 0.50119 mV/Pa (-66.3 dBFS @ 1 Pa). The sensitivity should not deviate from this after calibration has been performed.

8 Sound Level Measurement

The following describes how to perform a measurement with acoust IQ.

8.1 Performing a Measurement

On the home screen, you can use the “Start” button (Figure 8.1a) to go to measurement preparation. To do this, press “Start new measurement” in the lower area. After the measurement is completed, a task is created automatically in which the measurement is saved.

Alternatively, in Files, first use the “ button” to create a new folder  or task , which you can name directly. After the measurement, the new task/folder is assigned the date, number of files, and total length of the measurements (Figure 8.1b). Important: You must be in a task so that the measurement is assigned correctly. Otherwise, a new task is created in the corresponding folder.

After pressing “Start”, the app now shows the current sound levels in the measurement preparation view (Figure 8.2). Swipe right or left to switch between level values, spectrogram, third-octave bands (Figures 8.2a, 8.2b, 8.2c) and a freely configurable view (Figure 8.2d).

To change the freely configurable display, press and hold the screen. Various charts and values can then be combined.

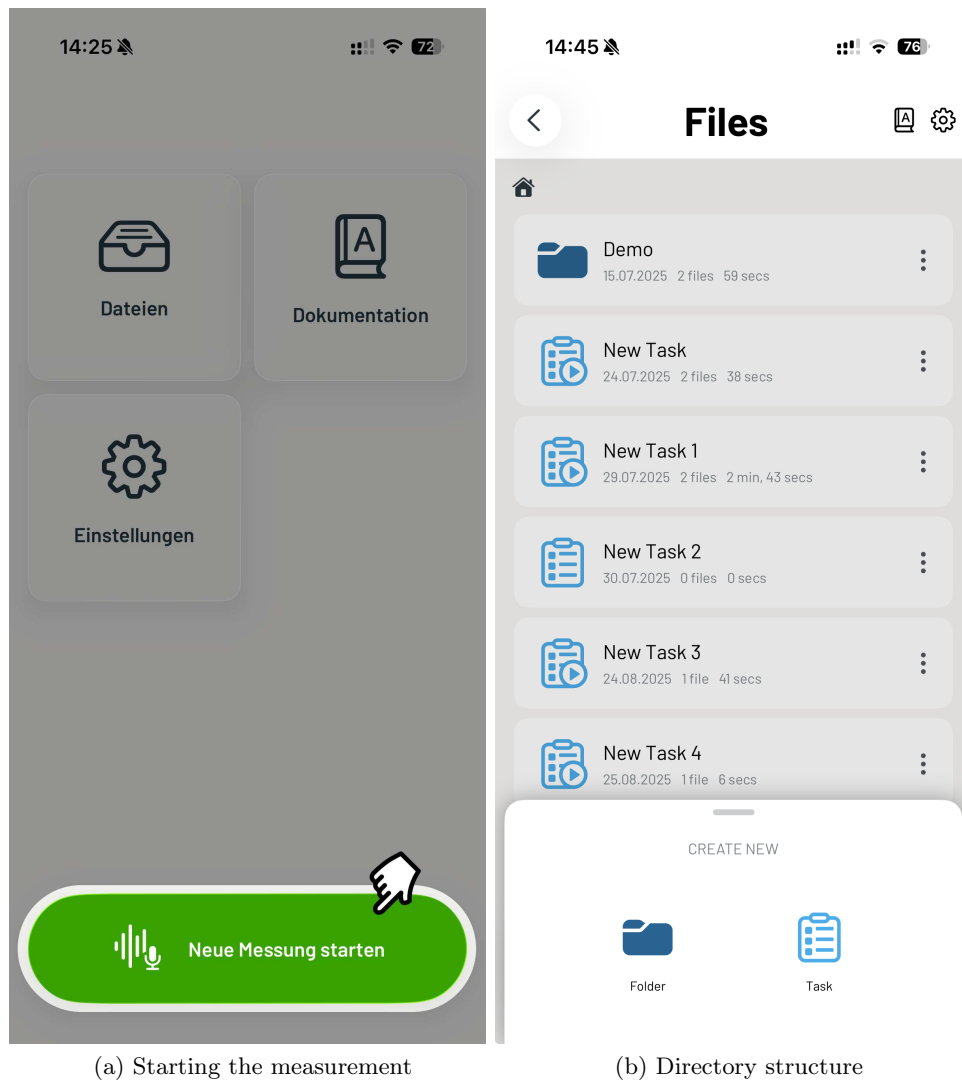
Please note: No measurement (recording) has been started here yet!

- Press the lower green Start button to start recording. The displayed level values are reset. The app displays the current sound level in decibels (dB).
- After starting the measurement, the red color on the display indicates that recording is active (Figure 8.4).

8.2 Markers

Markers can be set to mark specific acoustic events. During post-processing of the measurement, the markers are then available as reference points. 7 different markers (from 11 options) can be configured for individual characterization of the noises. The symbols represent the following noise types: aircraft, bell, telephone, unknown, multimedia, animal, vehicle, train, machine, conversation, ship. Markers can be configured in the settings (see Section 6.1).

8 Sound Level Measurement

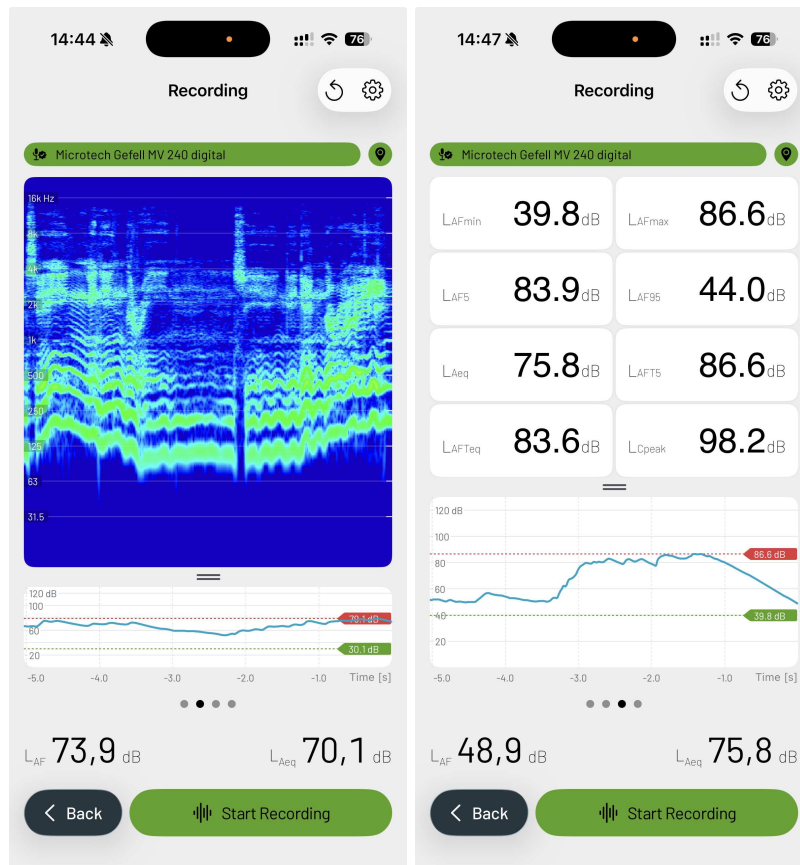


(a) Starting the measurement

(b) Directory structure

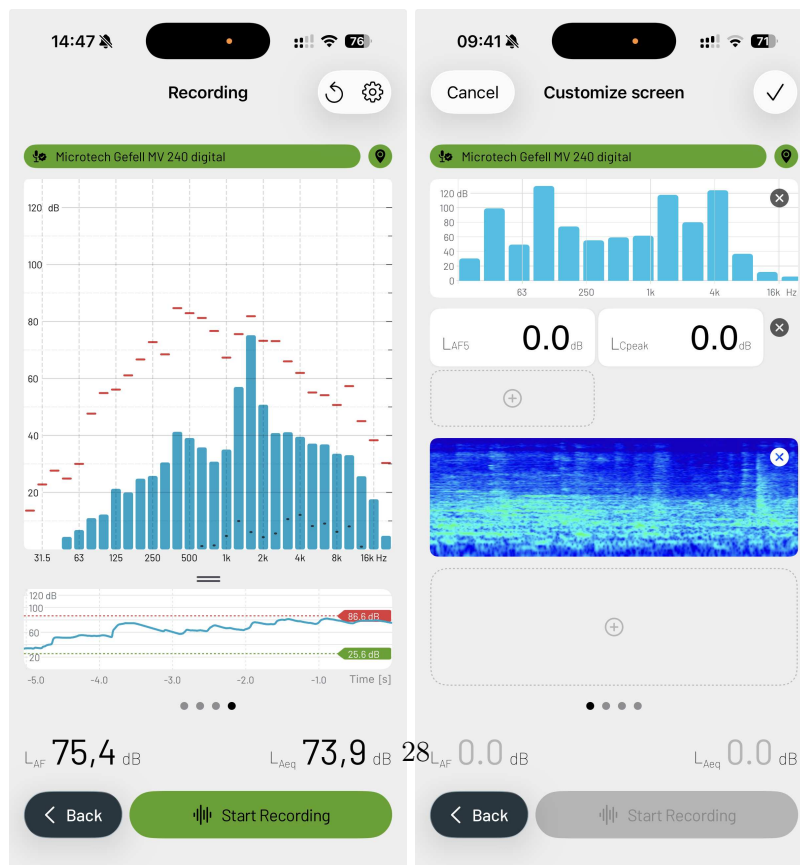
Figure 8.1: Creating the directory structure and starting measurement preparation.

8 Sound Level Measurement



(a) Spectrogram and level curve

(b) Level values and level curve



(c) Third-octave curve

(d) Configurable display

Figure 8.2: Measurement preparation views.

8.2.1 Setting markers during the measurement

During the measurement, various markers can be set manually by pressing the white flag . Specific acoustic events are subjectively marked in this way.

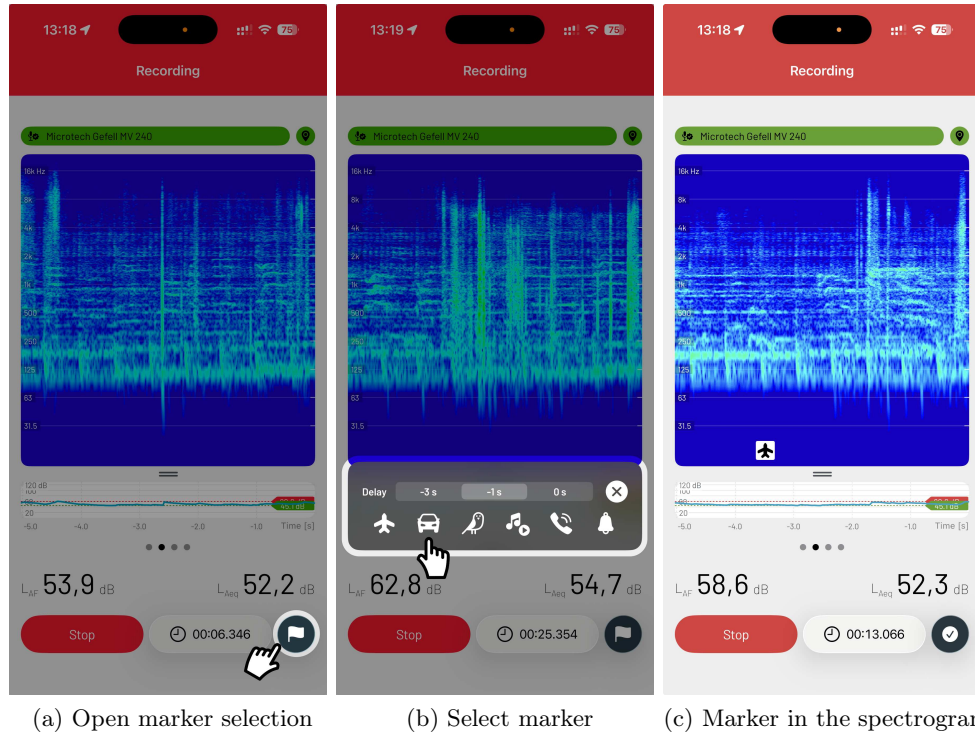


Figure 8.3: Setting markers during recording

8.2.2 Setting markers after the measurement (modification)

After the measurement, the set markers can be edited or new markers can be placed. For details, see Section 8.6.2.

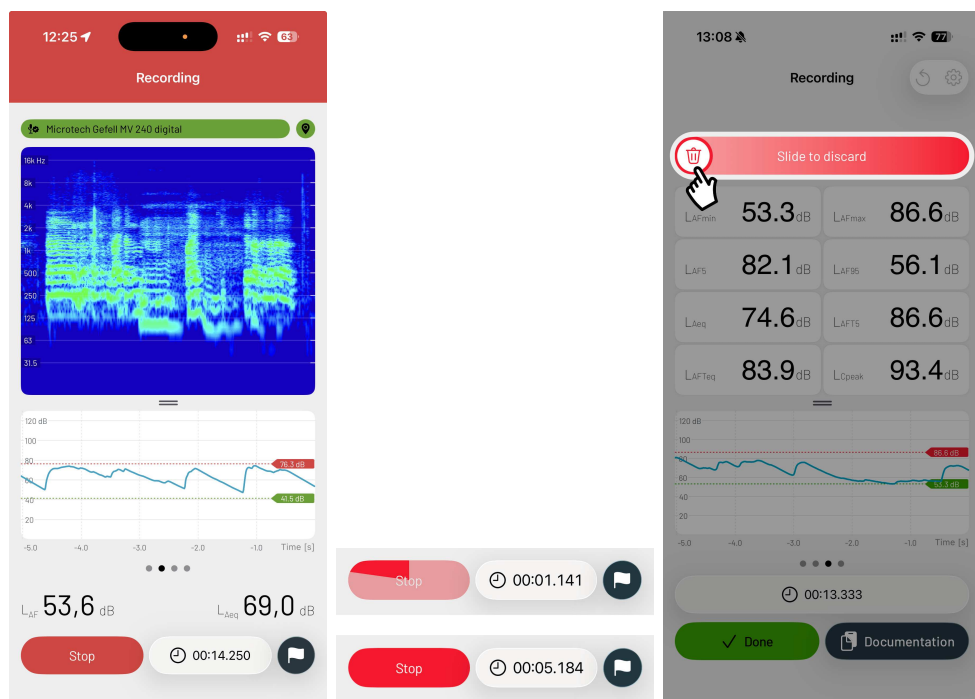
8.3 Stopping a Measurement

- A measurement can be stopped no earlier than after 5 seconds by pressing the “Stop” button (Figure 8.4b). Pressing “Done” completes and saves the measurement permanently.

8.4 Discarding a Measurement

If you want to discard the measurement, swipe from “left to right” at the top in the red area (Figure 8.4c).

8 Sound Level Measurement



(a) Active measurement recording (b) Stopping the measurement after 5 seconds (c) Discarding a Measurement

Figure 8.4: Measurement recording.

8.5 Measurement Documentation: Photos and Description

- If you want to use the measurement, you can now document it. Press “Documentation” at the bottom to add photos and notes directly to your measurement (Figure 8.5a). The name of the measurement can be adjusted or accepted. A description of the measurement can be added in the large text field (Figure 8.5b and 8.5d).
- The “photo symbol +” can be used to take a photo directly or select a photo from the photo media library of already saved recordings (Figure 8.5c). The description and the photos are used for later report generation. A maximum of 8 images can be assigned to one measurement. Make sure to save the photo description with "Done".
- The new measurement can now be saved (“Done”) or edited using “Edit measurement”. Editing is non-destructive and can be deleted again. You can also switch between different steps. Detailed information can be found in Chapters 8.6 and 10.

8.6 Audio Player and Editing a Measurement

A measurement can be edited directly after recording, or opened in the directory structure (task) by tapping it. In addition to the audio data, access to further metadata is also possible. Reports can be created and accessed in the upper area of the „Task” menu. (see Figure 8.6)

Tapping the audio data opens the audio player and “Edit measurement” area. Markers or ignored areas can be added here later. The recorded level values and time histories can also be displayed. The audio recording can also be listened to here. In „Images and Documentation” you can access the information created during documentation (see Section 8.5). The audio player also allows psychoacoustic analyses to be calculated.

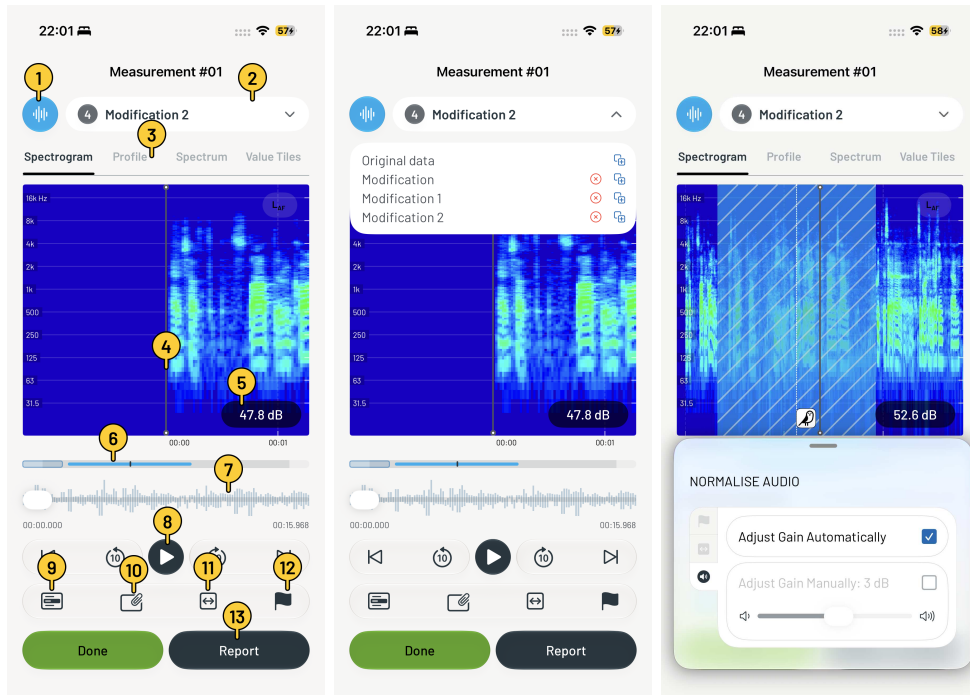
8.6.1 Overview, Original Data, and Modifications

Figure 8.7a provides an overview of the central elements of the audio player.

1. The icon indicates whether the audio player is in SPL mode or psychoacoustic measurement mode. Switching is possible at any time (Figure 8.9a). If no psychoacoustic recording was performed, it is now calculated based on the saved raw data. Depending on the recording length, this may take some time.
2. The upper drop-down menu lets you switch between the original data and the individual modification steps (Figure 8.7b). You can rename individual modifications. These names are referenced during report generation.
3. The selection allows you to switch between views (spectrogram, level, values, third-octave spectrum).

8 Sound Level Measurement

4. The central cursor is the reference line for the displayed level, as well as for placing new markers or ignored areas
5. The display shows the sound pressure at the time referenced by cursor (4).
6. The time overview shows the current cursor position in relation to the total measurement time. The blue area represents the section currently shown on the screen. When it is moved, the display changes accordingly. Moving the blue boundaries changes the displayed section. Zooming and navigating are even easier using finger gestures directly on the chart. Use a pinch gesture to zoom, and a simple swipe to move the displayed section.
7. The waveform always shows the entire measurement as well as the current cursor position.
8. The five player icons allow you to listen to and play back the measurement. Bear in mind that playback may be very quiet because of the limited capabilities of the phone speakers compared with the measurement microphone. The level can be increased automatically or manually using the Normalise function. Normalisation can also be disabled here (Figure 8.7c).
9. The first icon in the control bar opens the overview menu for markers, ignored areas, and audio normalization during playback (Figure 8.7c).
10. The second icon in the control bar provides access to the measurement documentation (Section 8.5).
11. The selection menu allows you to define an ignored or selected area. See also Section 8.6.2.
12. The last icon lets you place a marker at the cursor position.
13. The “Report” button opens the report generator. See also Section 8.7.



(a) Audio player with central controls. (b) List of existing modifications. (c) Normalizing the level

Figure 8.7: Overview of the audio player.

8.6.2 Setting Ignored Areas and Markers

If interfering noises occurred during the measurement, you can subsequently ignore the affected area and exclude it from the calculation of the average levels. Conversely, individual areas can also be deliberately selected. Only these areas are then included in the calculation of the average levels. Markers can likewise be placed for relevant events. The central reference for values or modifications is the cursor in the middle (Figure 8.8c). The individual options are described in more detail below.

To create a marker or an ignored area, open the selection menu in the measurement to be edited and select the “Ignored-area” icon  or the “Marker” icon . The central icon switches between an ignored and a selected area.

A new modification is created automatically. In the “Ignored-area” settings screen, select the start and end of the Ignored-area relative to the cursor using the “+/-” buttons. Pressing the blue “check mark”  confirms the changed selected area. The original data remains unchanged and can be accessed at any time via the upper drop-down menu. (Figure 8.8a)

Different markers are available for an event (Figure 8.8b). These presets can also be adjusted in the settings (see Section 8.2).

8 *Sound Level Measurement*

Markers and ignored areas can be edited or deleted again using the buttons  and then selecting the corresponding tabs ( or ) (Figure 8.8c).

The Ignored-area is shown grayed out in the Level view for checking (Figure 8.8c). In the value display (Values), the calculated level values are shown without the Ignored-area (Figure 8.8d).

8 Sound Level Measurement

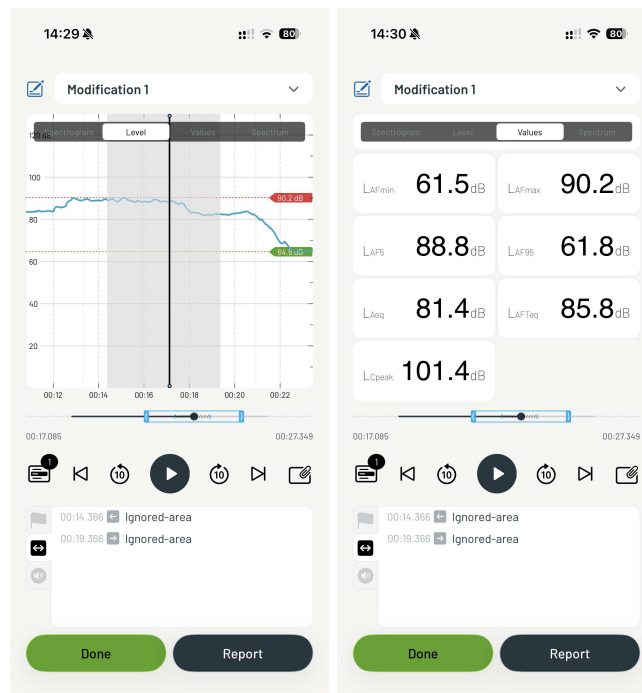
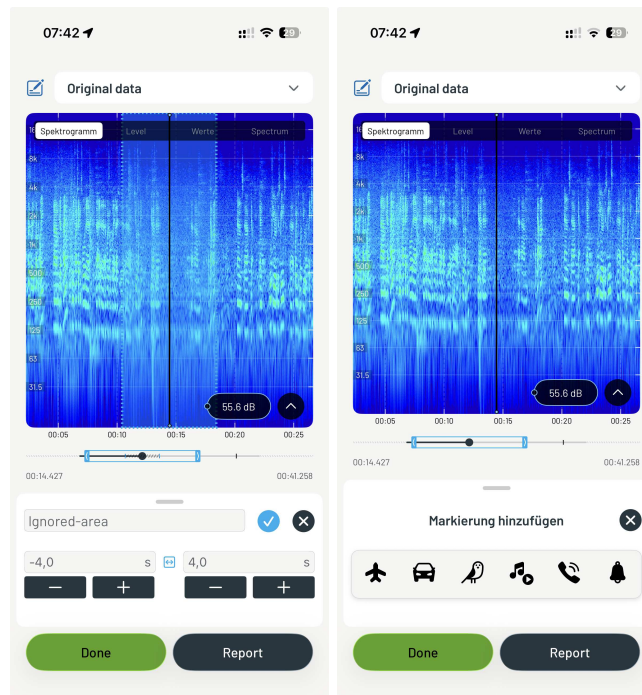


Figure 8.8: Ignored areas and markers

8.6.3 Psychoacoustic Measurement

acoust IQ is able to record psychoacoustic measurements (see Chapter 9) and display them in the audio player (Figure 8.9c). If you want to generate a psychoacoustic data set from an SPL measurement afterward, this can be done in the audio player by switching modes (see 1 and Figure 8.9a). There is no difference between a recorded psychoacoustic measurement and one created afterward. However, in the first case, more storage space is used immediately. In the second case, this occurs only during calculation, but the calculation time must then be waited for (Figure 8.9b).

8.7 Generate Report / Report

A report can be created either directly after the measurement or later from file management.

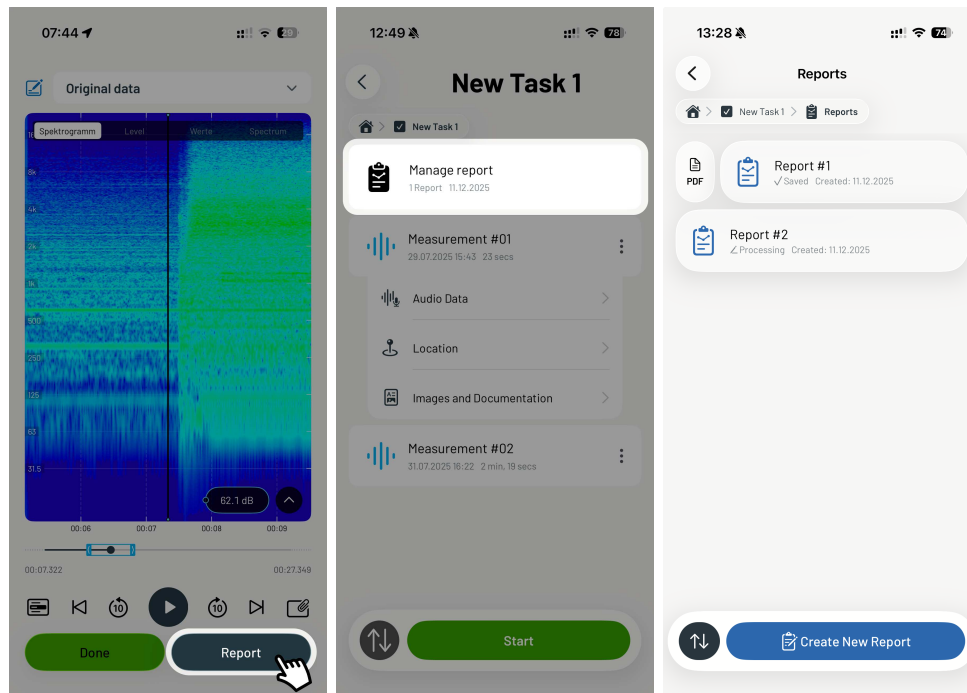
After all relevant modifications of the measurement have been created (Section 8.6), the report generator is started with the “Report” button (Figure 8.10a).

If a report is to be created at a later time or modified afterward, this can be done via the file browser. Report management is located within a task (Figure 8.10b). Here, new reports can be created, existing reports edited, and already generated PDF documents shared (Figure 8.10c).

Report creation is divided into three steps:

1. In the first step, all recurring information, such as company, editor, or report language, is entered.
2. Step two provides various settings for the measurements and the associated display.
3. In the third step, a PDF is generated so the report can be shared easily.

8 Sound Level Measurement

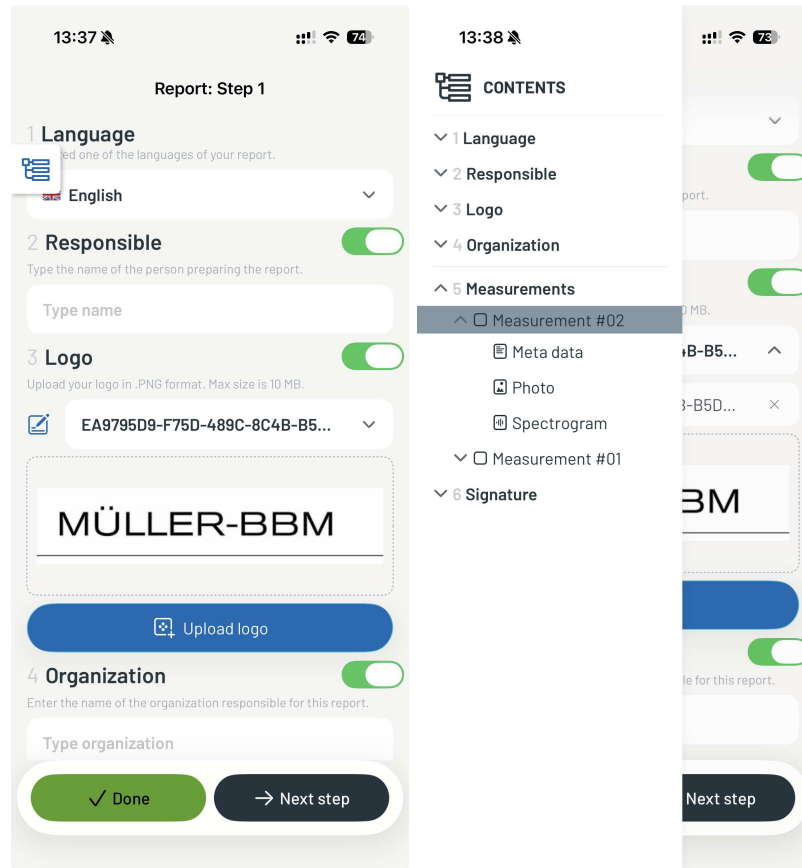


(a) Create report directly after the measurement (b) Report manager in file management (in the task) (c) Reports and associated PDF documents

Figure 8.10: Creating and Managing Reports

8.7.1 Report Step 1

- In this screen (Figure 8.11a), the recurring report details are entered. They are available directly the next time it is opened and do not need to be selected again. The language in which the report is to be created can be selected. (English, German, Japanese, Portuguese). The person responsible for the measurement can also be entered. Under “ Upload Logo”, a logo can be selected from the photo media library or captured with the camera. Next, the organization can be entered.
- A drop-down menu provides an overview of all relevant items (Figure 8.11b).
- Step 1 is completed by pressing the “next step” button. “Done” closes the generator and saves entries already made.
- Disabled blocks do not appear in the PDF.



(a) Step 1 of the report generator. (b) Overview in the report generator.

Figure 8.11: The generator for automated creation of measurement reports.

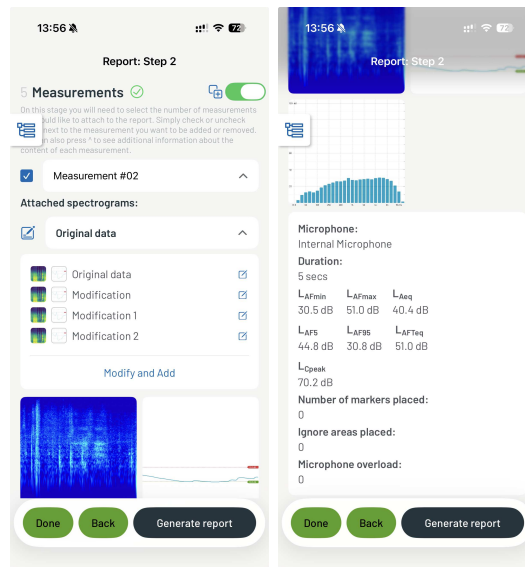
8.7.2 Report Step 2

- Measurement-specific data can now be entered and selected. The structure is divided into measurement data blocks and the signature. Measurement data blocks can be duplicated (using the icon ) , disabled, and deleted again. Measurements can be deleted by first disabling the measurement using the green slider and then deleting it using . (Figure 8.12c) This makes it possible, for example, to compare a measurement with and without modification. An SPL block and a psychoacoustic block are available for each measurement. If the measurement was not recorded as psychoacoustic measurement or calculated in the audioplayer afterwards, this is now done in this step.
- A measurement block contains the following elements:
 - Measurements, their modifications, and their metadata (Figure 8.12a)
 - Charts and values (Figure 8.12b)

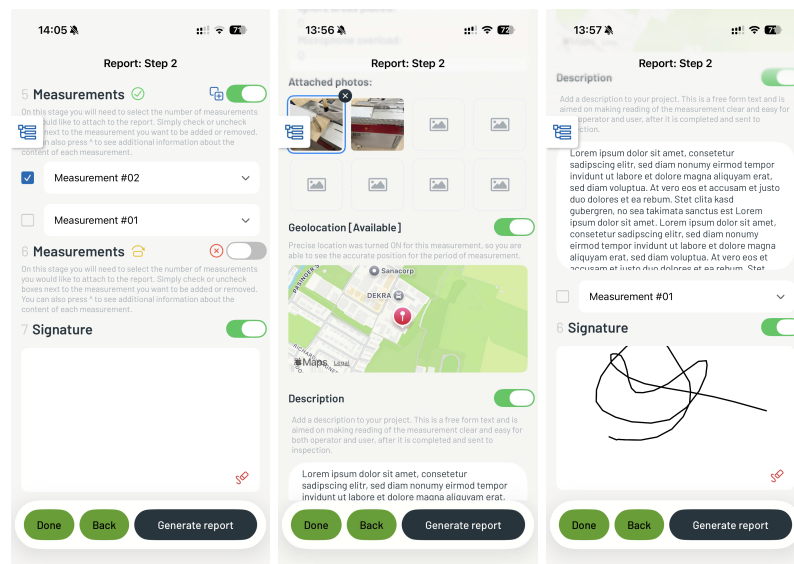
8 *Sound Level Measurement*

- Photos (including image description, Figure 8.12d)
- Geolocation (as a map); acoust IQ automatically distinguishes between a stationary measurement and a measurement path. (Figure 8.12d)
- Project description (Figure 8.12e)
- The “Create report” button now generates the report preview. The report can be shared as a PDF here. If a PDF has already been generated, it is overwritten by a newly generated report.

8 Sound Level Measurement



(a) Select measurement and modification. (b) Charts and values of the measurement.



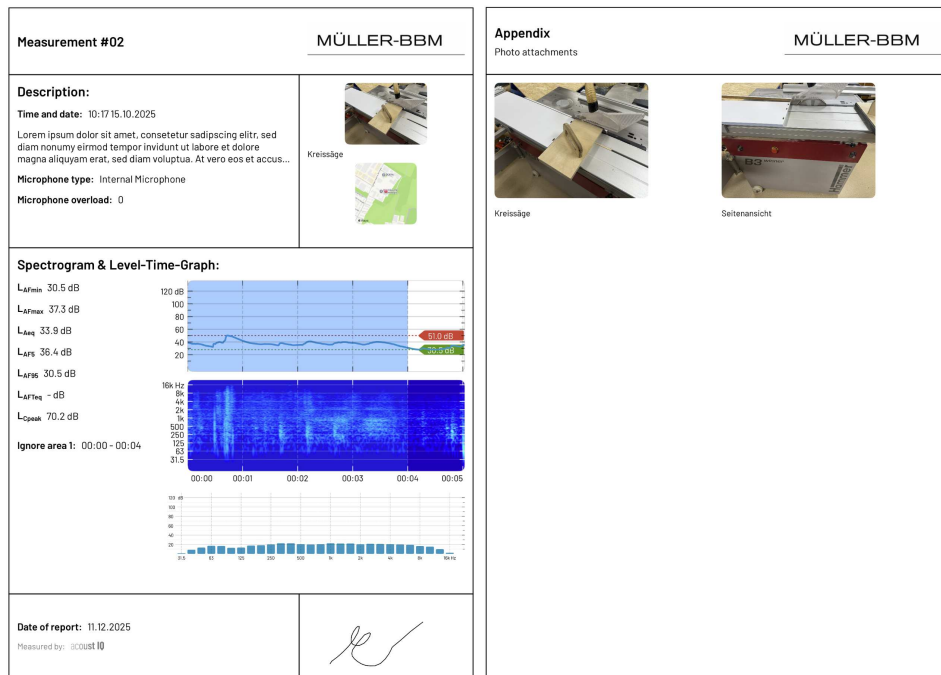
(c) Add and delete additional measurements. (d) Photos and geolocation. (e) Measurement description and signature.

Figure 8.12: Step two in the report generator.

8.8 Generated Report

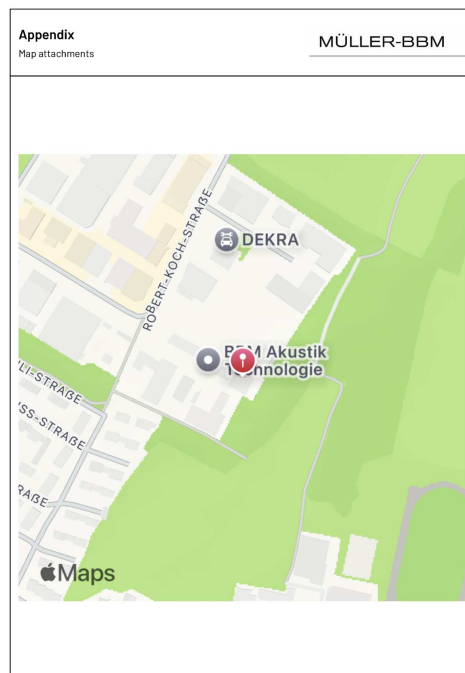
In the output, one report page is used per measurement (Figures 8.13a). This means that one report page can also be easily embedded in another document. Charts, photos, and geo information are also included as additional pages in the appendix (Figures 8.13b, 8.13c). Please note that the form and layout of the report may differ depending on the license. However, the basic structure is the same for all standard variants.

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(a) Main page of the report.

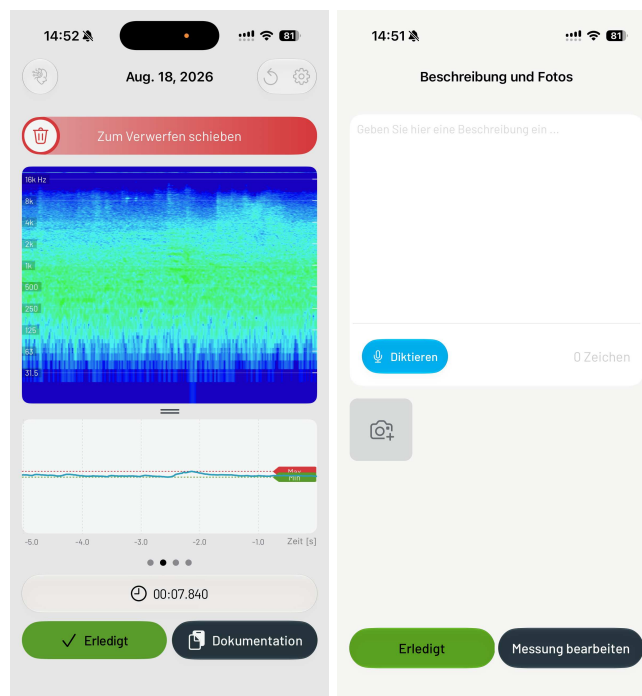
(b) Photo appendix.



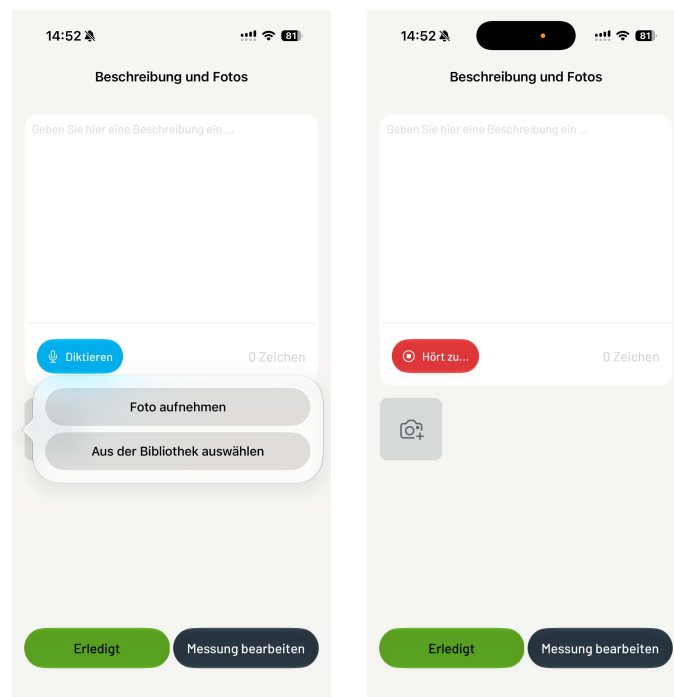
(c) Map appendix.

Figure 8.13: Generated report

8 Sound Level Measurement



(a) Completed measurement (b) Measurement documentation



(c) Adding photos (d) Add measurement description by dictating into the measurement microphone

Figure 8.5: Measurement documentation

8 Sound Level Measurement

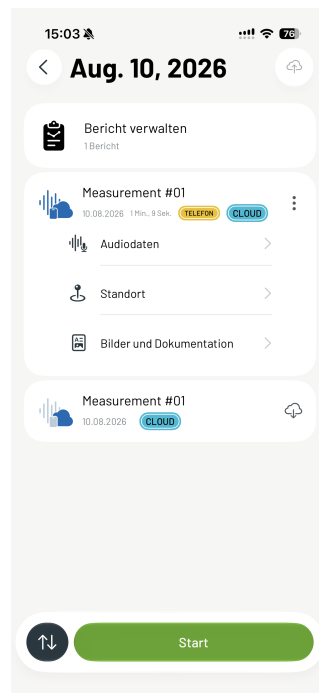
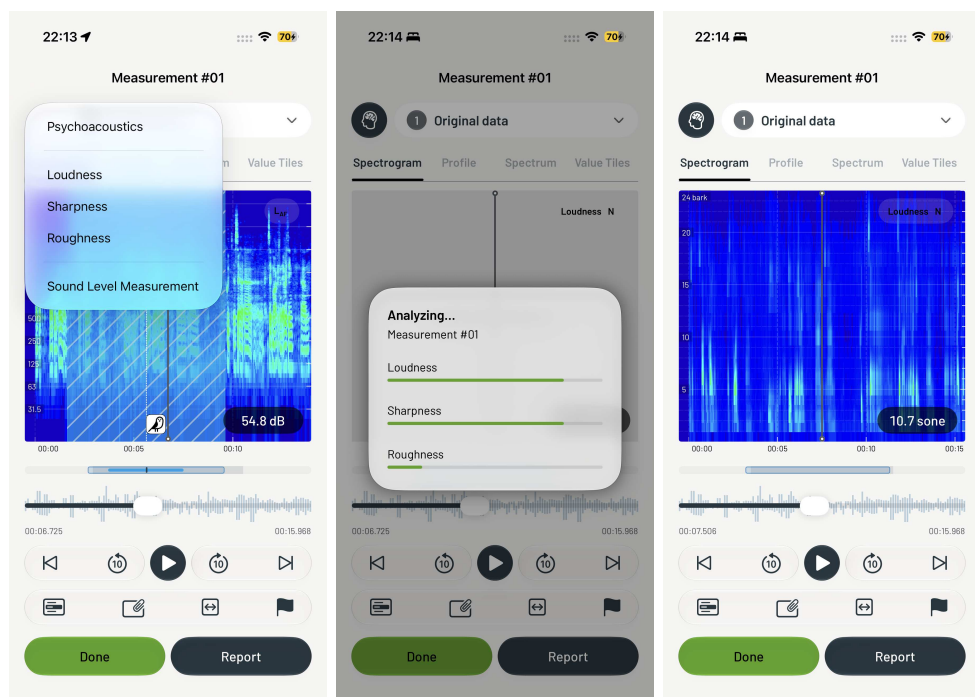


Figure 8.6: Access to measurement data, metadata, and reports.

8 Sound Level Measurement



(a) Selection of psychoacoustic calculation. (b) Calculation of the psychoacoustic analysis. (c) Psychoacoustic analysis in the audio player

Figure 8.9: Psychoacoustics in the audio player

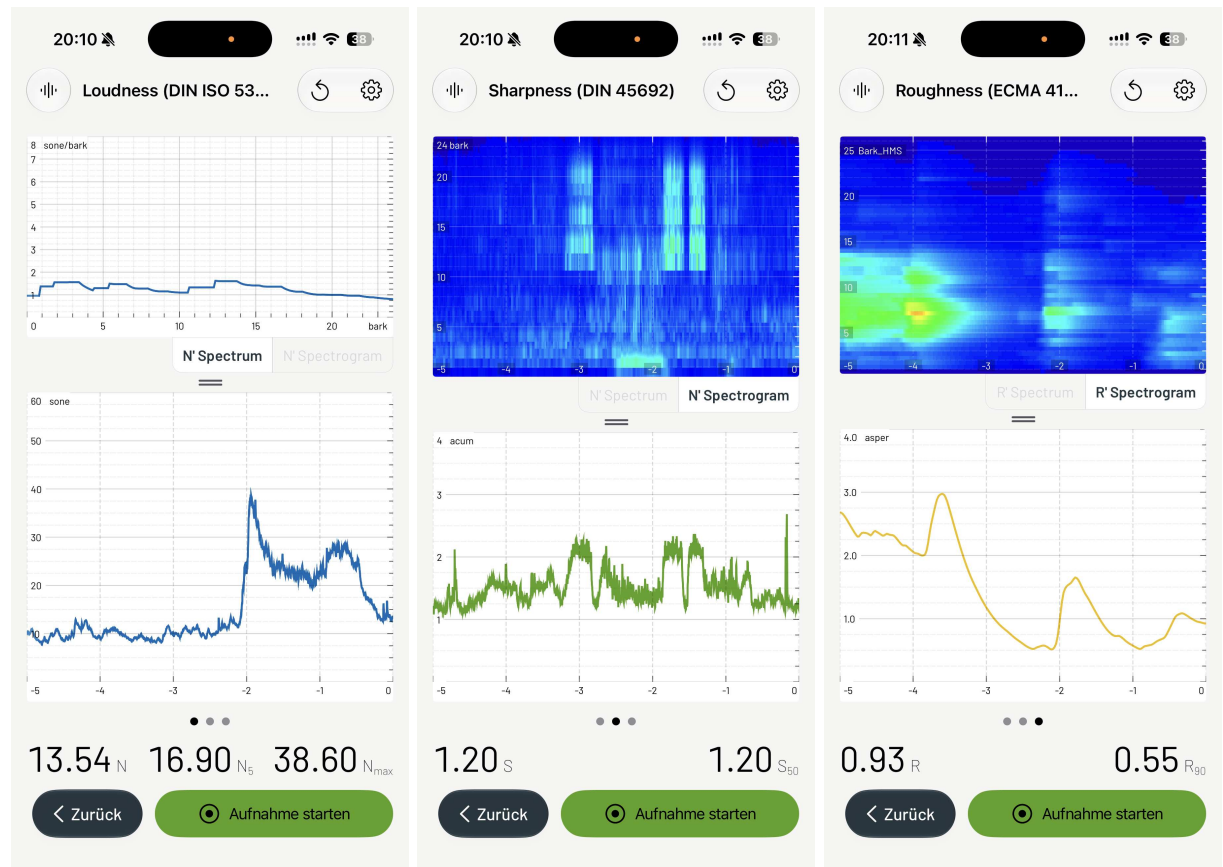
9 Psychoacoustic Measurement

In addition to SPL measurements, acoust IQ provides the option of making psychoacoustic recordings. The respective calculation and display are performed in real time. The following quantities are available:

- Loudness (DIN ISO 532-1)
- Sharpness (DIN 45692)
- Roughness (ECMA 418-2)

A psychoacoustic measurement can be started either from the home screen or calculated afterward (see Section 8.6.3).

9 Psychoacoustic Measurement



(a) Loudness according to DIN ISO 5331-1 (b) Sharpness according to DIN 45692 (c) Roughness according to ECMA 418-2

Figure 9.1: Psychoacoustic Metrics

10 Measurement Parameters

The acoust IQ app and the measurement microphone (Microtech Gefell MV240/MKS225) together form a precise Class 1 hand-held sound level meter that meets the requirements of the following standards for sound measurement and frequency analysis:

- DIN 45 641
- DIN EN 61672-1
- DIN EN 61260-1

The following calculated level quantities are available simultaneously (reference sound pressure $p_0 = 20 \mu\text{Pa}$, Figure 10.1):

L_{AF} current A-weighted sound pressure level with time constant F (Fast)

L_{Aeq} equivalent continuous A-weighted sound pressure level

L_{AFmin} minimum A-weighted sound pressure level

L_{AFmax} maximum A-weighted sound pressure level

L_{AF5} 5% percentile level

L_{AF95} 95% percentile level

L_{AFT5} A-weighted maximum cycle level with 5-second cycle time

L_{AFTeq} energetically averaged A-weighted maximum cycle level

L_{Cpeak} C-weighted peak sound pressure level

Frequency weightings: A, C, Linear (Z)

Time weightings: F (fast) and S (slow) The time limit for each measurement is preset to 30 minutes. When this time is reached, a new measurement is recorded in the task until the “Stop” button is pressed.

The measurement time is determined by “Start” and “Stop”.

The spectrogram and the level time history with the sound level LAF (instantaneous value and third-octave level) are now updated continuously.

10 Measurement Parameters

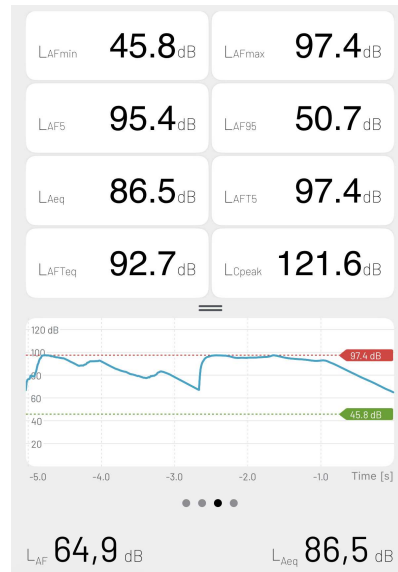


Figure 10.1: Available level displays

10.1 Icon overview



Marker



Ignored-area



Photos & Description



Display showing the number of markers, Ignored-areas



Number of markers, Ignored-area



Add Ignore-area



Add Markers

11 Cloud backend

A cloud infrastructure is available for the acoust IQ pro and live variants. The same URL is used for iOS/iPadOS and the corresponding web frontend. It will be provided when you obtain your license. Separate documentation is available for using the web app and remote measurement functions. Online training is also available. Please contact us if you are interested.

12 Technical Data

12.1 Microtech Gefell MV240/MKS225

Frequency range 1 Hz to 80 kHz

Self-noise with MKS225 7 dB(A)

Limit sound pressure level 160 dB

Digital Connection USB 2.0 (Audio Class 2.0) via USB-C

Further technical details can be found at the following link: <https://www.microtechgefell.de/mikrofonverstaerker?wl=1118-MV240USB#start>

12.2 UMIK-2 (miniDSP)

Self-noise approx. 18 dB(A)

Limit sound pressure level 125 dB

Digital Connection USB 2.0 (Audio Class 2.0) via USB-C

When using the UMIK-2, the classification of the sound level meter system is reduced to Class 2. For more details about the alternative UMIK-2 (miniDSP) microphone, please refer to the manufacturer's website: <https://www.minidsp.com/products/acoustic-measurement/umik-2>

13 Important Notes

- Make sure that the sound level meter is correctly calibrated to obtain accurate measurement results.
- Find out about the applicable regulations and guidelines for sound level measurement to ensure that the measurements are performed correctly and in compliance with legal requirements.
- Hold the sound level meter steady in your hand during the measurement and do not place the sound level meter on mechanically vibrating surfaces.
- Individual figures in this document may differ in details, language, or format.

14 Tips

- Practice using the app and the sound level meter before performing the actual measurement.
- The app is easy to use and requires no prior technical knowledge.
- If you have any questions, contact app support.

Enjoy performing the sound level measurement!