Soundskrit Demo Kit Interface

User Manual

2026 Jun 18

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1. Get Started

1.1 About Soundskrit Demo Kit Interface

Using the Soundskrit Demo Kit Interface, you can access a wide range of options involving Soundskrit demo kits and customized audio prototypes. It provides access to a comprehensive set of functions, including taking live recordings, or comparing the performance across different processing pipeline. The GUI simplifies the configuration by consolidating the most frequently used controls onto a single page, allowing you to see the impact of algorithms on the audio performance and visualizations for certain audio applications in real time.

1.2 Overview

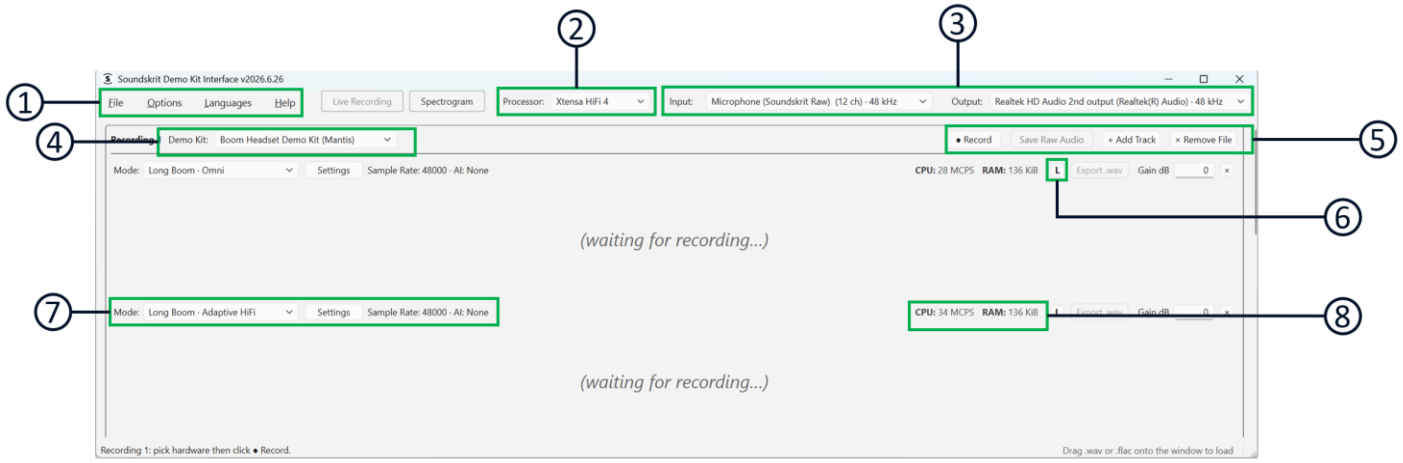


Figure 1: Soundskrit Demo Kit Interface Overview

1	Menu bar
2	Processors drop down menu
3	Device Input and Output
4	Demo kit drop down menu
5	Actions for specific audio file
6	Live listening button
7	Algorithm configuration workplace
8	Computational requirement benchmark

The following sections provide more details about the installation of the software and the components of the GUI.

2. Installation and Connection

This section explains the installation of the Interface and the default layout of the GUI.

2.1 Installation

Perform the following steps to install the Soundskrit Demo Kit Interface on a **Windows** PC:

1. Download the **Soundskrit Demo Kit Interface**. Double-click the setup.exe file in the download folder and follow the on-screen steps.
2. Open the software through clicking **Start → Soundskrit Demo Kit Interface** or using the desktop shortcut generated by the installer.
3. Enter the GUI interface for next step configuration.

2.2 Menu Bar

The Soundskrit Demo Kit Interface has four menu items: **File**, **Options**, **Languages** and **Help**. In each section, the corresponding operations are explained as below.

i. **File**:
   a. Load Recording: You can load external audio recordings by clicking this button.
   b. Samples: Soundskrit provides sample audios to you across all demo kits for quick assessment of the various algorithms. Please refer to each demo kit user manual for detailed explanation of these audio samples in terms of recording conditions.
   c. Load Plugins: Upload the Plugin file to configure the customer prototype platform in the GUI for audio processing. To learn more details in configuration, please refer to **Plugins** section.
   d. Open Plugins Folder: Default folder location for plugins files. To learn more details in configuration, please refer to **Plugins** section.

ii. **Options:** Enable Automatic Normalization to all audio files or cancel it.

iii. **Languages**: Switch the language between English, French and Simplified Chinese.

iv. **Help**:
   a. User Guide: You can access this user manual via this button.
   b. Check for Update: You can check if the software needs to be updated to have the latest bug fixes and algorithm updates.
   c. Benchmarking: Detailed information about the processors used in benchmark.
   d. View Logs: Software running log for bug or issue examination.

2.3 Connect Demo Kit to the GUI

The GUI provides built-in audio samples for direct audio performance evaluation. Alternatively, you can load external audio files into the GUI for assessment. Both options can be used without connecting the demo kit. Please refer to **Load Audio Files** section for detailed instruction. To evaluate audio performance using live recordings, connect the demo kit to the PC.

In a typical Soundskrit demo kit box, you can find at least four parts to connect the demo kit to the PC. Typically, these parts are the demo kit board, a Soundskrit PARDI audio interface (PARDI board), a Molex cable and a USB-A to USB-C cable. Taking the Mantis kit as an example, below shows the components in the box.

Figure 2: Soundskrit Mantis Kit Overview

What's In the Box	
1	Soundskrit PARDI audio interface (PARDI board)
2	USB-A to USB-C cable
3	Molex cable
4	Demo kit board

After connecting all the components to PC, the flashing Green LED on the PARDI board indicates a good connection. In the software, the **Input** drop-down menu should show **Microphone (Soundskrit Raw) (12ch) · 48 kHz**.

Note that there could be a warning message prompting you to switch to raw mode when you first connect demo kit to the GUI (applied to the demo kit shipped before Jun 2026). This occurs because the Soundskrit Demo Kit Interface requires a raw audio signal for downstream processing by the Soundskrit algorithms. Clicking **Yes** will set the PARDI board output to raw mode, and raw signal could be automatically detected and displayed in the **Input** drop-down menu as **Microphone (Soundskrit Raw) (12ch) · 48 kHz**.

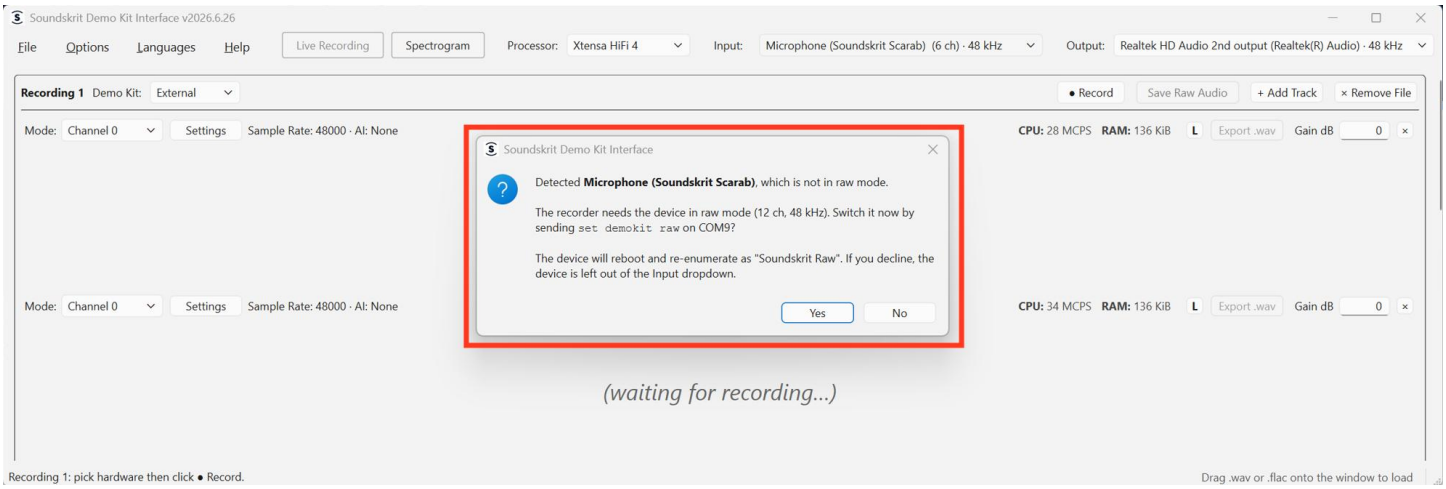


Figure 3: Set PARDI Board Mode to Raw

3. Configuring the Interface

This section will introduce detailed steps to configure the Soundskrit Demo Kit Interface and evaluate the performance across demo kits.

3.1 Initial Setup

Once the demo kit is connected to the PC and the Input is set as **Microphone (Soundskrit Raw) (12ch) · 48 kHz,** you can proceed with the initial setup before comparing audio performance. On the top bar of the GUI, you can select the desired **Output**, which specifies the output channel for audio playback.

To view the computational requirements of the selected algorithm or AI model, select a processor core from the **Processor** drop-down menu. The **CPU usage** and **RAM usage** will then be updated in each track to reflect the resources needed to run the selected algorithm.

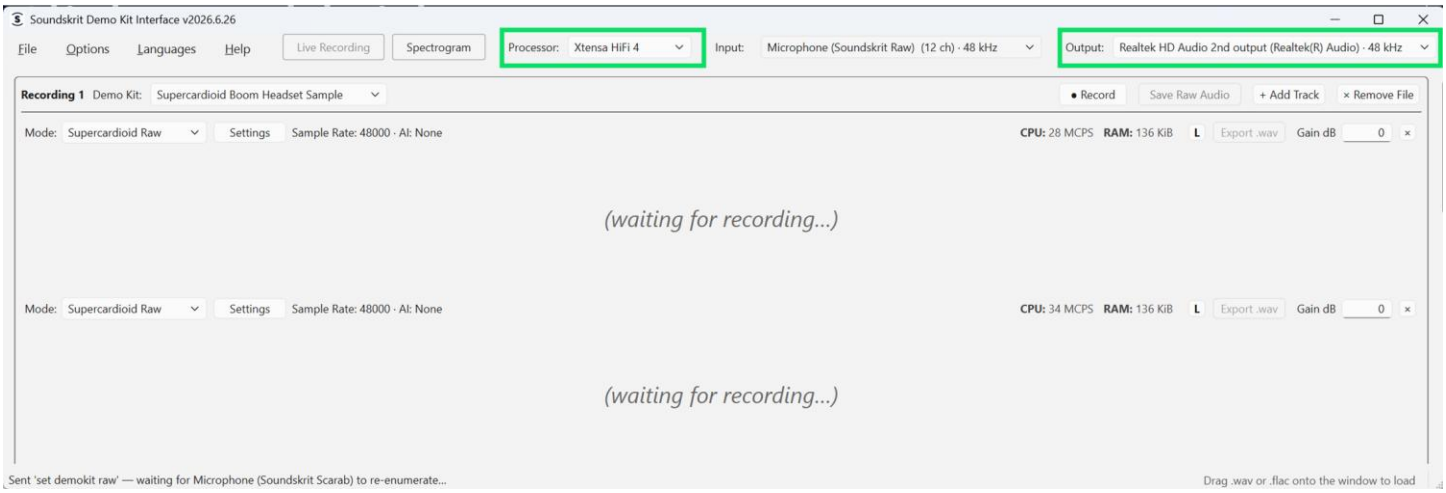


Figure 4: Choose Processor core and Output Channel for Audio Playback

3.2 Loading Audio Files

3.2.1 Load Sample Audio

The GUI contains several pre-recorded audio samples for each demo kit to allow users to quickly start listening to Soundskrit's demo kit performance, without needing to take recordings themselves. We've used our demo kits to take recordings in various scenarios to highlight performance when operating in environments with diffuse background noise, direct interferers, and varying speech levels.

To load pre-recorded audio samples into the Soundskrit Demo Kit Interface, click **File → Samples → Demo Kit Audio Sample,** and wait for the audio sample loaded into the GUI.

This will automatically create an audio track using the pre-recorded samples. You can then select the desired testing sample audio in **Section** and Mode to listen to and quickly begin comparing the performance of different options available.

Figure 5: Load Built-in Audio Samples to the Interface

3.2.2 Load External Audio

The Soundskrit Demo Kit Interface also allows you to upload an external .wav file for audio processing without a demo kit connected. The only requirement is that the .wav file must be a raw signal recording captured from the corresponding demo kit. To upload the file to the GUI, there are three ways:

a. Click **File** and then click **Load Recording**
b. Quick action, CTRL+O
c. Drag the audio file directly into the Soundskrit Demo Kit Interface

Once the audio file is loaded into the GUI, you need to choose the demo kit used to record the audio. You can then evaluate performance across algorithms by adding additional tracks and configuring them accordingly.

Figure 6: Set Demo Kit to Mantis in External Audio Processing

Users can export the processed audio by using the **Export .wav** button on the corresponding track.

If the external audio file is not recorded by a Soundskrit demo kit, it will appear as an **External** audio in the GUI, and it cannot be modified with any of Soundskrit's algorithms. External audio files are typically used as benchmark references to compare the audio performance between a Soundskrit demo kit and other audio solution.

3.2.3 Live Recording

To record audio via the demo kit, click **Live Recording** on the top bar and select the connected device under Demo Kit. For example, in the configuration shown below, **Mantis** is selected as the recording device.

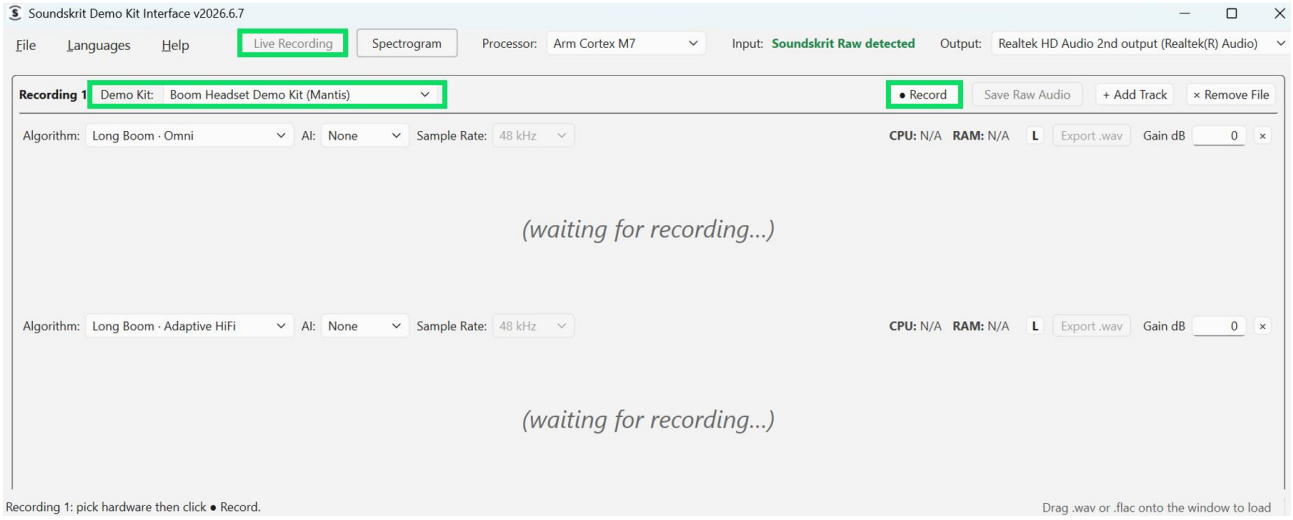


Figure 7: Take Live Recording via Mantis Demo Kit

Click **Record** in the top-right corner to start recording and click **Stop** when you are finished. The captured audio is then normalized on each track. If the level is too low, you can raise it manually using the **Gain dB** control. Beyond the default configuration of each track, you can also set up any track yourself desired by choosing its algorithm and AI model in **Settings**.

3.2.4 Live Listening

The Soundskrit Demo Kit Interface allows you to listen to real-time audio process effects. By clicking **L** next to computational benchmark info, the GUI will pass the processed algorithm on the selected track directly to the output device selected in the GUI. Click **L** on any of the different tracks, to compare the performance of different algorithms in real time.

Please note, when you select **L**, you do not need to hit **Record** to enable the Live Listen functionality.

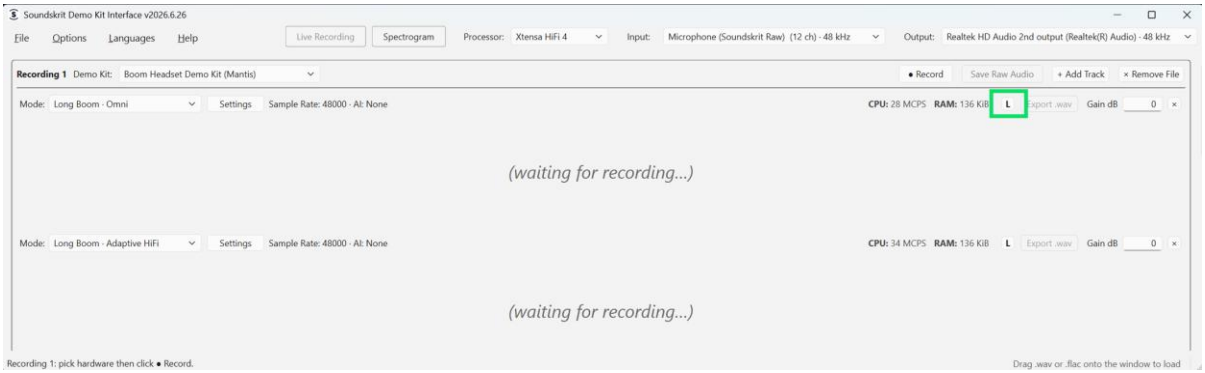


Figure 8: Live Listening Button in the GUI

3.3 Compare Audio Performance Across Tracks

After loading the audio files into the GUI, users can evaluate and compare audio performance by applying different algorithm configurations and other parameters across multiple tracks. Besides the waveform display, the GUI also supports a spectrogram view for visualizing the frequency content of the audio. To switch views, click **Spectrogram** at the top of the window. Please refer to the quick action table shown below to learn the quick actions you can perform in the track.

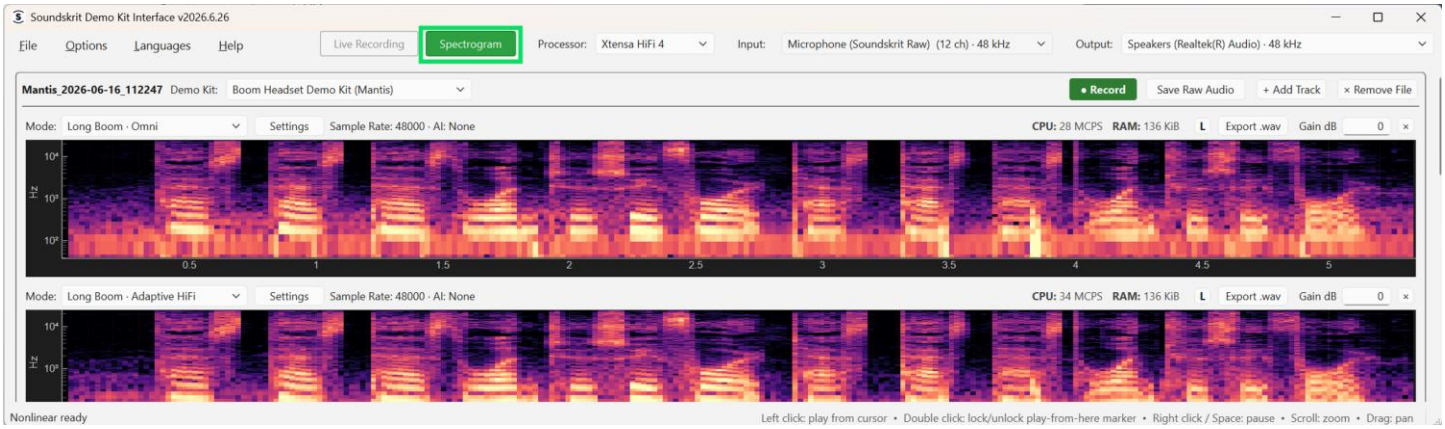


Figure 9: Spectrogram View in the GUI

Table below shows the quick actions you can perform in the Soundskrit Demo Kit Interface.

Action	Description
Left Click	Play this pane from the click position
Right Click / Spacebar	Pause / Start playback
Double Click	Drop a grey vertical play-from-here marker at the click time across all tracks. Double click again to remove.
Ctrl + Scroll	Zoom the time axis in / out
Drag	Pan along the time axis

3.3.1 Algorithms

Soundskrit provides various algorithms across all demo kits, and each algorithm is fine tuned in terms of the specific use scenario. To evaluate performance, you can configure the beamforming algorithm for each track using the **Mode** drop-down menu. You can also adjust the AI model and other processing parameters, such as sampling rate, stereo mode and VAD, in the **Settings** panel. Please refer to the respective demo kit user manual for detailed descriptions regarding the algorithms in each demo kit.

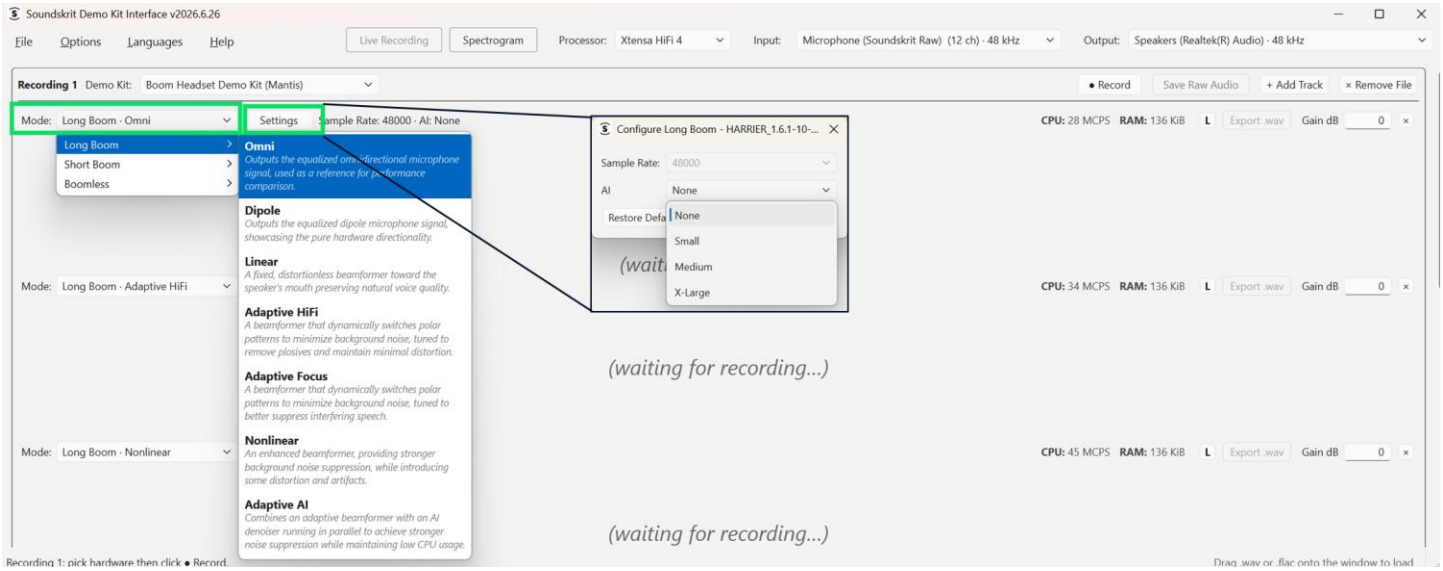


Figure 10: Mantis Algorithm Mode Drop-Down Menu and Settings Option in the GUI

3.3.2 Computational Requirement Benchmark

In each track, you can find computational benchmarks to understand the resources required to port Soundskrit's algorithms into your target chipset.

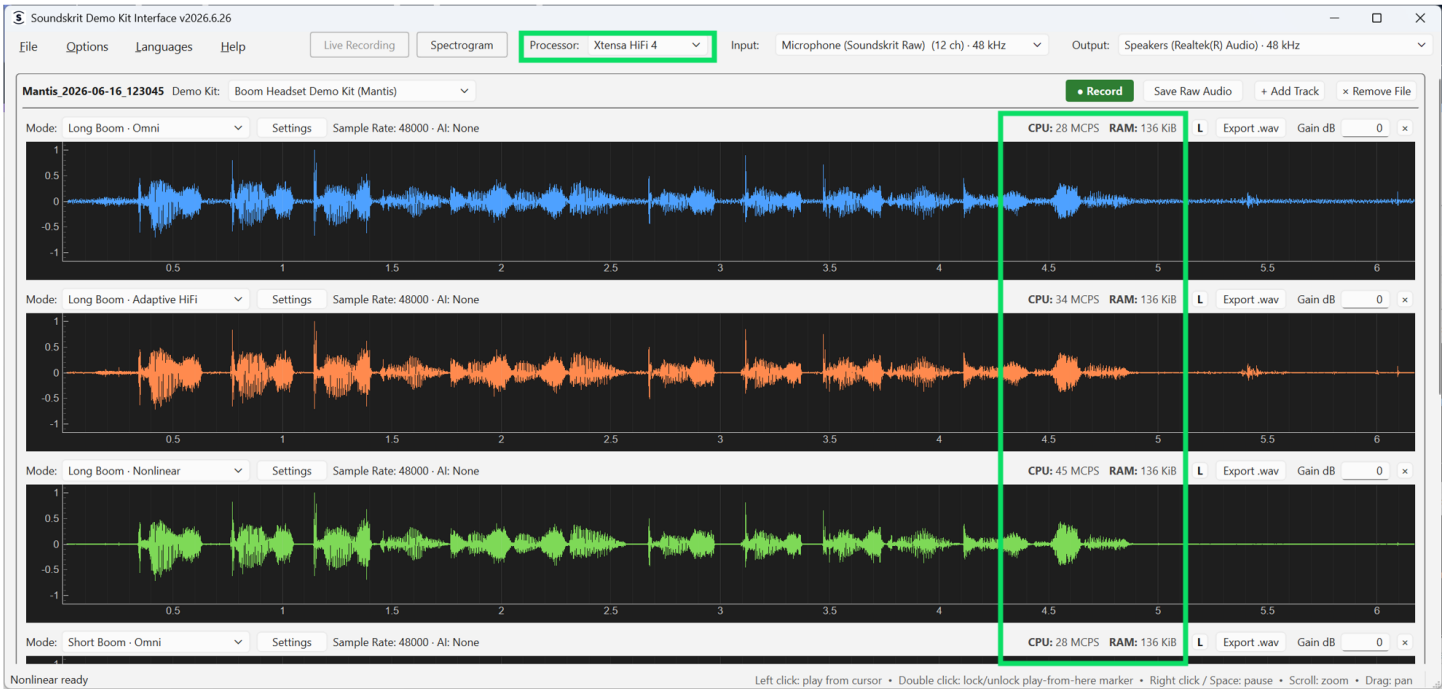


Figure 11: Computational Benchmark for Different Algorithms

3.3.3 Visualization Interface

For certain demo kits, the audio performance may not be the only feature to assess. For example, Soundskrit's WXY Demo Kit (Butterfly) provides a direction of arrival (DoA) visualization interface. For more detailed instructions, please refer to these demo kits' respective user manuals.

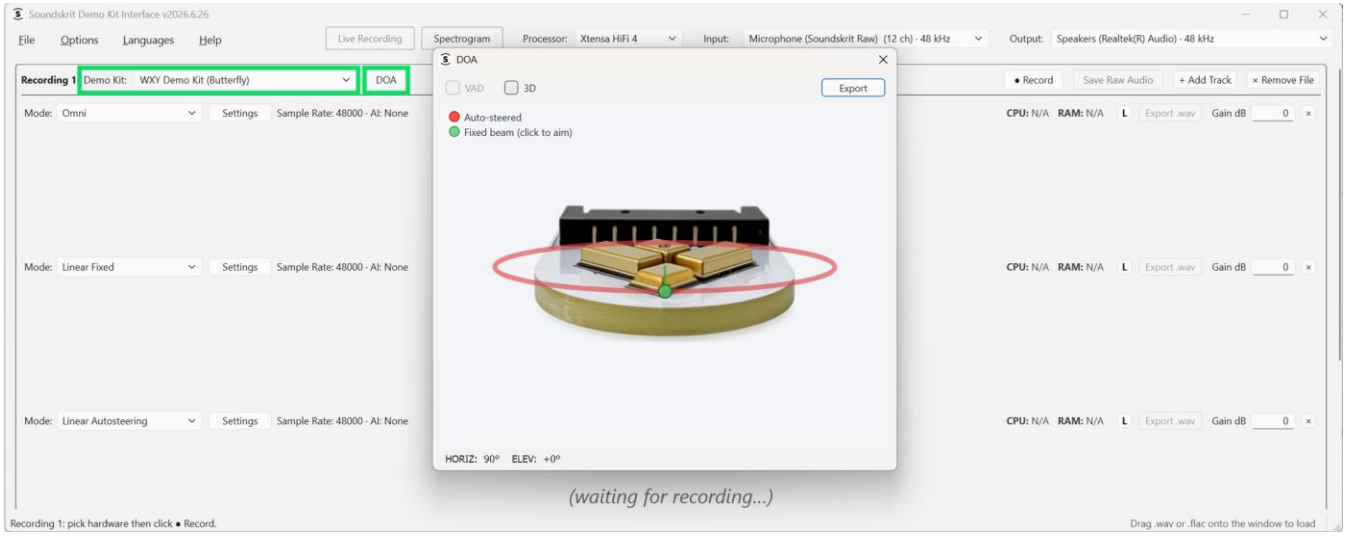


Figure 12: Butterfly DoA interface

3.4 Audio Performance Measurement

The Soundskrit Demo Kit Interface supports audio performance measurement by routing the processed output to other audio platforms for further acoustic characterization, including frequency-response and directionality measurements. To perform it, make sure the **Live Listening** function is enabled in the GUI.

3.4.1 Recording Audio in the Software with Loopback Input Support

There are some audio platforms that support the loopback input for audio recording. A common choice is Audacity, a free, open-source audio editor that can record the processed output directly.

Audacity supports WASAPI loopback recording, so it can capture the live output without any additional routing. To record, set Audacity's host to WASAPI, then select the loopback input that corresponds to the output chosen in the Soundskrit Demo Kit Interface as the recording device. The captured audio can then be analyzed or exported for further measurement.

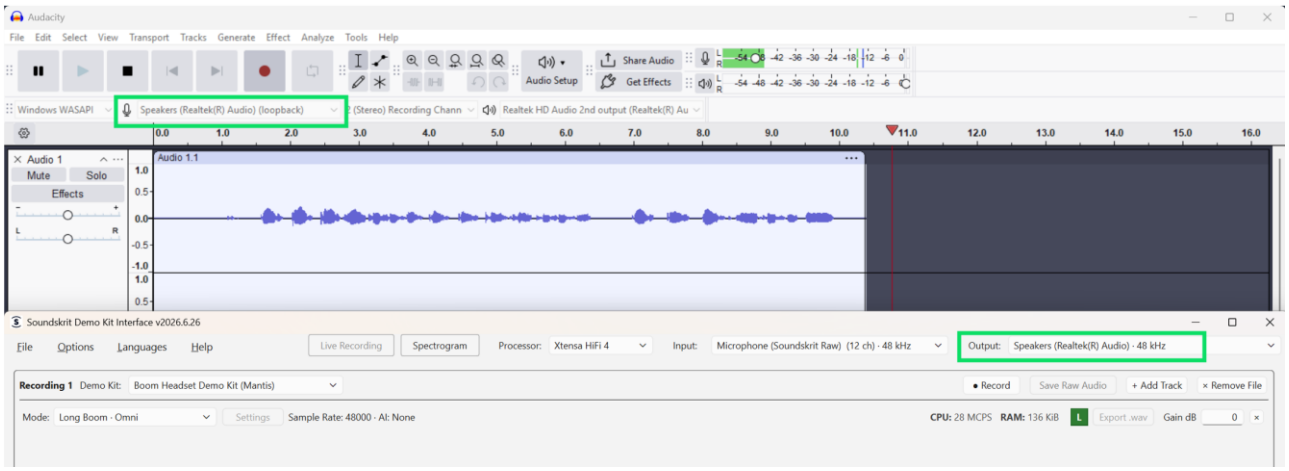


Figure 13: Set the GUI live output as the input in Audacity

3.4.2 Recording Audio in the Software without Loopback Input Support

Some measurement applications, such as Audio Precision, cannot record from a loopback input directly. In this case, use a virtual audio cable to route the processed output into the measurement software.

a. Install a virtual audio cable, such as VB-CABLE from VB-Audio.

b. In the Soundskrit Demo Kit Interface, set the output device to the virtual cable's input, so the processed audio is sent into the cable.

c. In your measurement software, select the virtual cable as the recording input.

If your measurement software supports WASAPI, you can select the virtual cable directly as the WASAPI input and no further setup is required. Audio Precision APx500 added WASAPI support in version 10, so installations running version 10 or later can use the virtual cable this way.

If your software does not support WASAPI (for example, Audio Precision APx500 before version 10), route the virtual cable through ASIO using ASIO4ALL:

a. Install ASIO4ALL, then in your measurement software set the input connector to ASIO and the device to ASIO4ALL v2.

b. Open the ASIO4ALL control panel from the software's device settings.

c. In the WDM Device List, enable the VB-Audio virtual cable device (shown as VB-Audio Point in the example below) so it becomes active.

d. The virtual cable now appears as an available input channel that you can map to your measurement software's inputs.

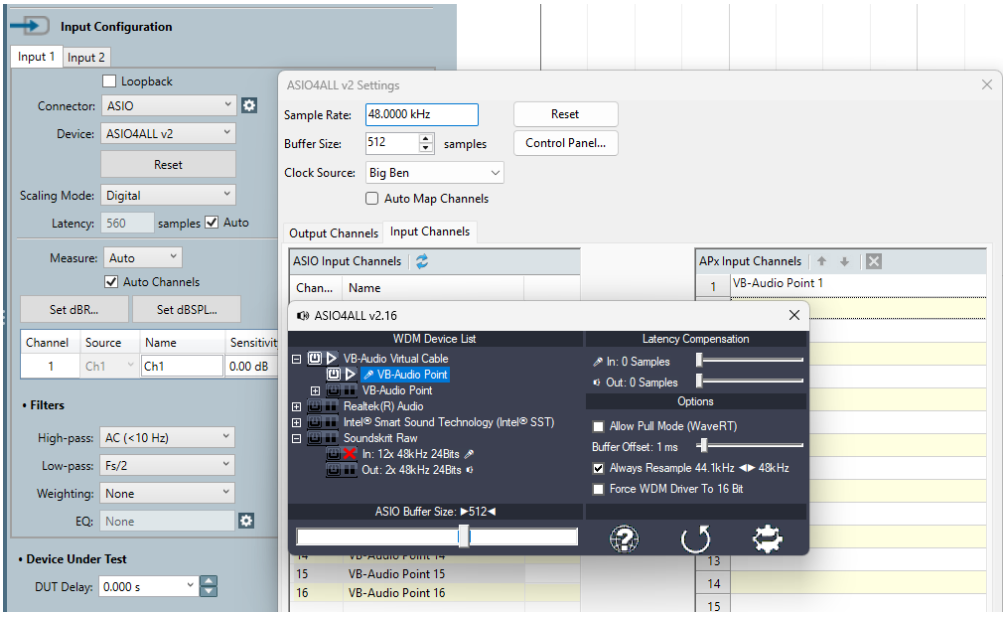


Figure 14: ASIO4ALL configuration routing the VB-Audio virtual cable into Audio Precision

3.5 Save Audio File

There are two ways to save audio files in the Soundskrit Demo Kit Interface. Using the **Save Raw Audio** button saves the unaltered audio captured by the PARDI board or the DUT. If the connected demo kit outputs multiple channels, they will be saved in a multichannel wav file. Using the **Export .wav** button saves the selected track processed by the chosen algorithm mode and settings as a single channel *.wav* file. While the GUI automatically normalizes the audio tracks for easier comparison, the exported *.wav* file will not be normalized.

Figure 15: Two methods for saving audio files

If you save the raw audios, you can load them back to the Soundskrit Demo Kit Interface at any time to further evaluate the built-in algorithms.

4. Loading a Plugin for Evaluation for a Custom Device/Algorithm

4.1. Overview

You can skip this section if you are only using Soundskrit's standard demo kits.

To facilitate the evaluation of audio performance for a custom algorithm developed by Soundskrit, the Demo Kit Interface supports a plugin-based architecture. Each plugin allows users to load a custom set of algorithms tuned for a specific hardware prototype, or DUT (device-under-test).

Once the plugin is loaded, the DUT can be selected from the **Demo Kit** drop-down menu. Based on how the DUT is connected, the proper **Input** will need to be selected. Please refer to below table.

Audio Signal Connection	Input in the GUI
DUT connects its microphones directly to Soundskrit's PARDI board.	Soundskrit Raw device
DUT runs its own firmware that outputs the raw microphone signals over USB audio.	Corresponding DUT device name
External *.wav* file	-

Once the proper **Input** is selected, you can then perform live recording, live listening, or offline processing of raw audio files within the same evaluation environment. The interface provides the same framework for configuring, applying, and comparing different Soundskrit algorithms developed specifically for the DUT with that for a demo kit.

4.2. Upload a Plugin

Select **Load Plugins** under **File** and choose the desired *.skp* file (shared by Soundskrit team).

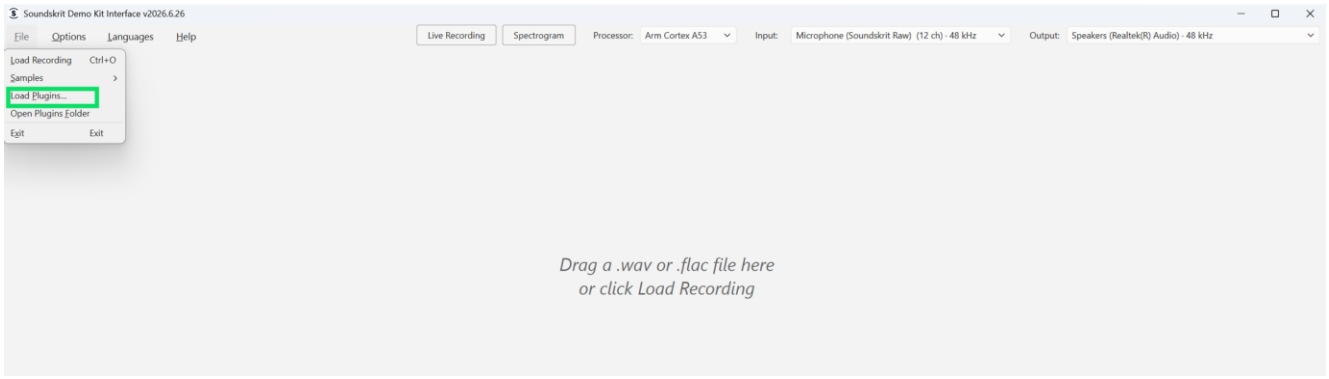


Figure 16: Load Plugins Option in the GUI

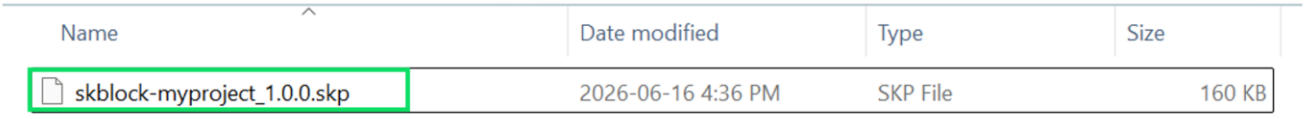


Figure 17: Pluglin .skp File

DUT can then become available under the **Demo Kit** drop-down menu. In this case, “Sample Plugin Group” is the DUT the plugin file related to.

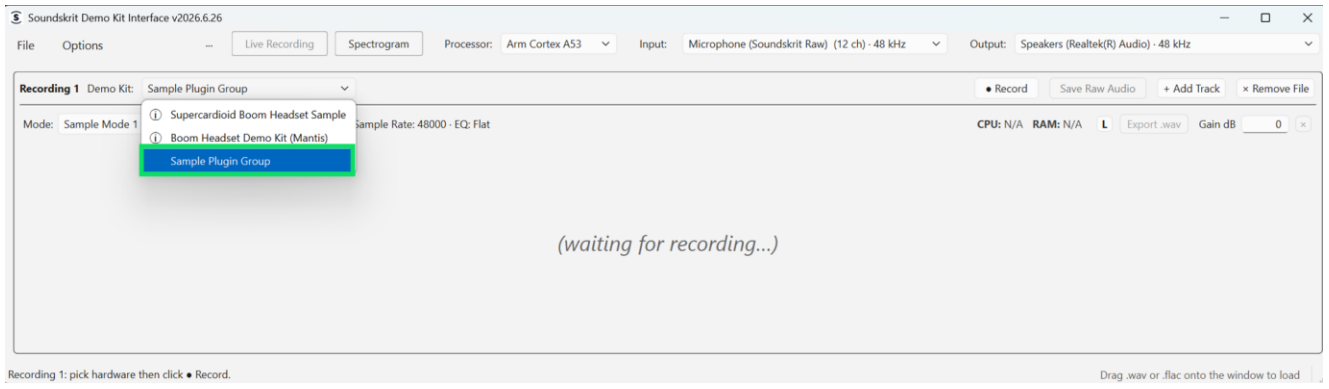


Figure 18: DUT option in Drop-down Menu

Additionally, you can save the desired plugins in the **Open Plugin Folder** options. After this, reopen the GUI and the DUT will automatically appear in the **Demo Kit** drop-down menu. So, you don’t need to load the plugins each time you open the GUI.

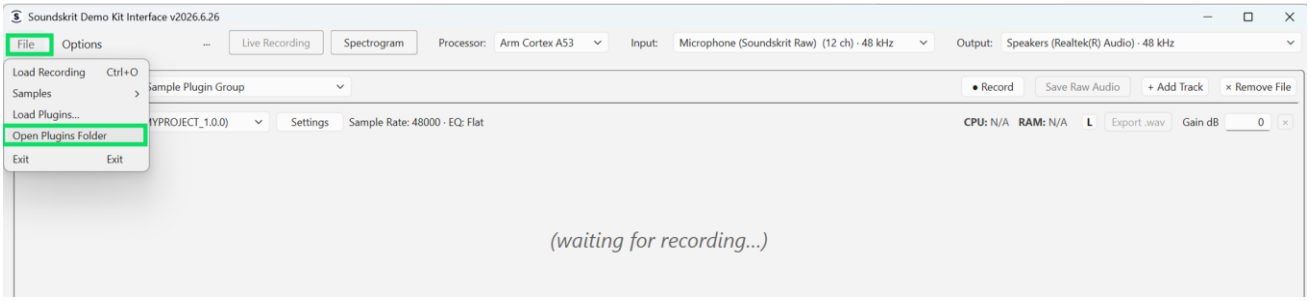


Figure 19: Open Plugins Folder Option

4.3. Loading Audio Files

Select the file under **Load Recording**. You can also drag and drop your recording into the GUI. It is the same operation during demo kit evaluation.

Select the algorithm mode you wish to evaluate.

If you have loaded multiple plug-ins, the modes for each plug-in will show in the **Mode** drop-down menu when you select the correct DUT in **Demo Kit** drop-down menu. The version number in **( )** should match its corresponding plug-in.

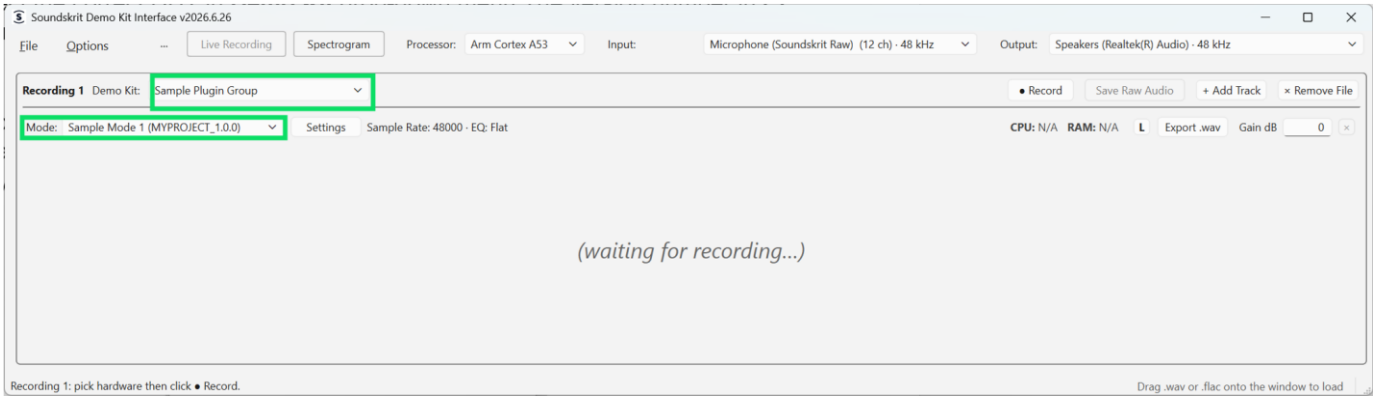


Figure 20:Algorithm Mode in Processed Audio Evaluation with DUT

Click the **Settings** to choose the parameters for audio processing. Depending on the algorithm specifically developed for DUT, you can choose corresponding parameters, including AI model, EQ, VAD, etc., that you want to evaluate.

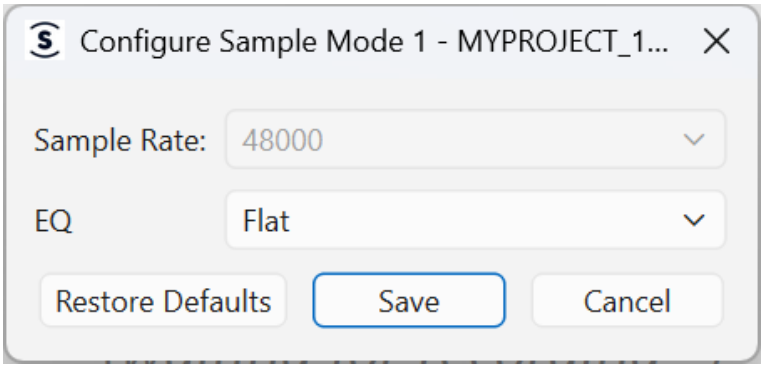


Figure 21: Parameters in Settings

Add additional tracks to compare and select the desired algorithm mode for each track.

Listen to the different algorithm options by clicking on the tracks. The processed result will be played back through the audio channel selected under **Output**. All outputs have an EQ applied to either be flat or match the frequency response of the DUT.

Similarly, with **L** button on the top-right corner of each track, you can evaluate the processed audio performance in real-time.

Reminder: Available algorithm options vary across DUTs, please ensure the demo kit hardware is selected to the correct DUT.

After evaluation, you can also save the audio files through **Save Raw Audio** or **Export.wav options.** For more details, please refer to **Section 3.5**

5. Troubleshooting

Problem	Possible Cause	Solution
Cannot find **Microphone (Soundskrit Raw) (12ch)** · **48kHz** in the Input	The demo kit is not correctly connected to PC	Verify the connection between PARDI board and mantis, as well as between PARDI board and PC. A green LED indicator on PARDI board should be flashing if the connection is correct.
Cannot configure tracks in external audio file	The audio file is not recorded by the demo kit selected or not properly saved.	Check the audio source and make sure it is recorded by selected demo kit. When users save audio files, **Save Raw Audio** button should be used instead of **Export .wav** button. The latter one only saves the audio in the track after processing.

6. Additional Support

For further information on Soundskrit's products, visit our website at http://www.soundskrit.ca where you can find more application notes, datasheets, and purchasing information. If you have any questions or need technical support, please reach out to applications@soundskrit.ca.

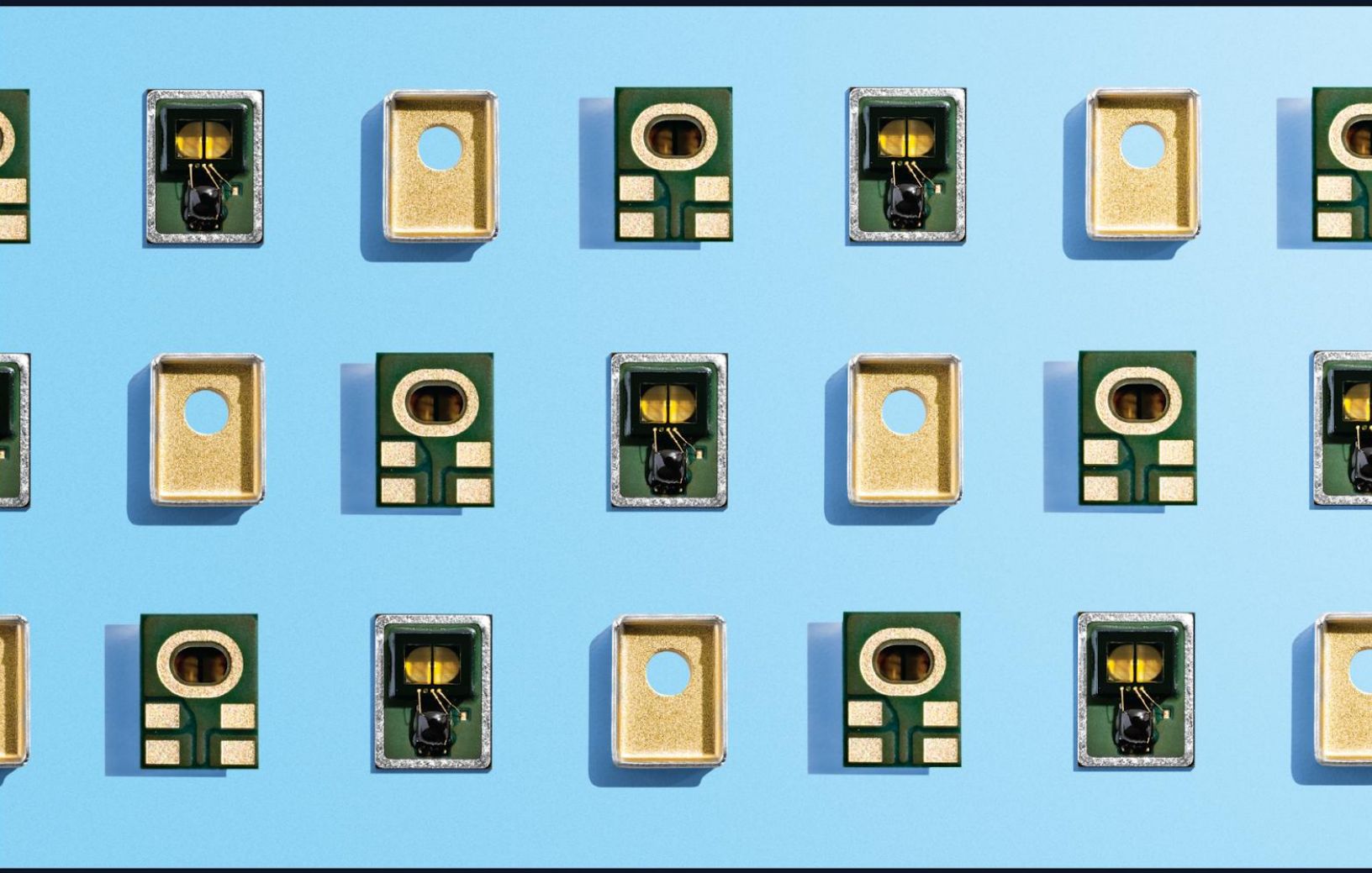
7. Revision History

Revision Label	Revision Date	Sections Revised
-	Jun 2026	Initial release

Figure 18: Add benchmark recording in Mantis GUI

Soundskrit developed the first high-performance directional MEMS microphone on the market, leveraging years of research in bio-inspired MEMS based on how spiders and other insects in nature hear. In combination with Soundskrit's in-house audio processing algorithms, directional microphones can be used to capture and isolate any sound in an environment with a fraction of the size, power, and computation of traditional omnidirectional-based microphone arrays.

Soundskrit was founded in 2019 and is headquartered in Montreal, Quebec with an R&D facility in Ann Arbor, Michigan.



soundskrit
Hear the impossible.