1. Overview



Figure 1: Soundskrit Tabletop Microphone Demo Kit (Ant)

The Soundskrit Tabletop Microphone Demo Kit (Ant) is an evaluation tool for a tabletop microphone built with Soundskrit directional microphones. It targets applications such as conference calls, content recording and livestreaming, where a single compact microphone on the desk must capture one or more talkers clearly while rejecting background noise and room reverberation to pro-level audio quality.

The kit includes the Ant microphone module, which holds six MEMS microphones: four Soundskrit SKR0610 directional microphones and two omnidirectional microphones, distributed three per side on both faces of the PCB. The module plugs into the included desk stand, which connects to a PC with a USB-C to USB-A cable and provides multichannel raw audio signals to the Soundskrit Demo Kit Interface for processing.

The Ant kit supports three audio processing modes (Omni, Directional and Stereo), all of which can be configured and evaluated in the Soundskrit Demo Kit Interface software. Together, these modes demonstrate how a compact directional microphone array can be used to focus on the desired talkers, reduce background noise and produce stereo recordings from a single tabletop device to fit different use scenarios.

What's In the Box	
Ant Microphone Module	Microphone module with four SKR0610 directional microphones and two omnidirectional microphones, control buttons and a USB-C connector
Desk Stand	Weighted base and arm with a USB-C receptacle that holds the Ant module, assembled with the included screw
USB-A to USB-C Cable	A cable to connect the stand to your PC.

 Copyright © 2026 Soundskrit Inc

Table of Contents

1. Overview 1
2. Hardware Introduction 3
   2.1 Ant Microphone Module 3
   2.2 Desk Stand 3
3. Software Introduction 4
4. The Ant Algorithm Introduction 5
   4.1 Recording Mode 5
   4.2 AI Denoising 6
   4.3 Cardioid Beamformer Characterization 6
5. Setup Guide 7
   5.1 Installation 7
   5.2 Audio Performance Evaluation 7
      5.2.1 Option 1: Load built-in audio samples 7
      5.2.2 Option 2: Load an External .wav File 8
      5.2.3 Option 3: Record Live with the Ant 8
6. Troubleshooting 9
7. Additional Support 9
8. Revision History 9

 Copyright © 2026 Soundskrit Inc

2. Hardware Introduction

2.1 Ant Microphone Module

The Ant module is a compact PCB carrying six MEMS microphones, three on each side of the board. Each side holds two Soundskrit SKR0610 directional (dipole) microphones and one omnidirectional microphone (IM72D128V01XTMA1). The side with the control buttons is the **front** of the module and should face the main talker.

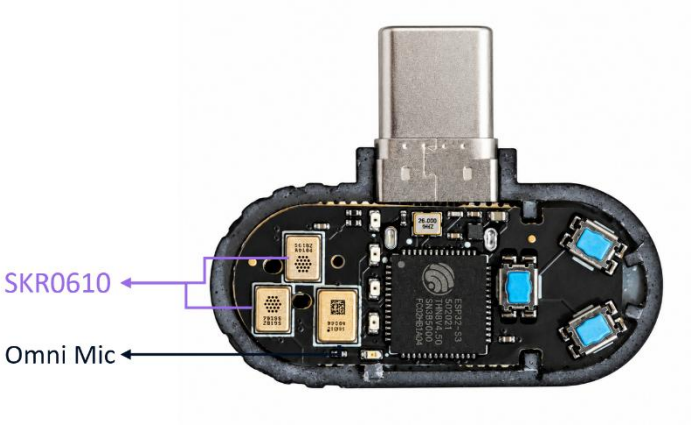


Figure 2: Microphone Layout of the Ant Module



Figure 3: Front Side of the Kit

2.2 Desk Stand

The desk stand consists of a weighted round base, an arm and a mounting screw. The Ant module plugs into the USB-C receptacle at the top of the arm, and the stand connects to your PC with the included USB-C to USB-A cable. When assembling the stand, align the tab on the base with the notch on the arm. This ensures that the demo kit is positioned at the correct angle toward the user's mouth.

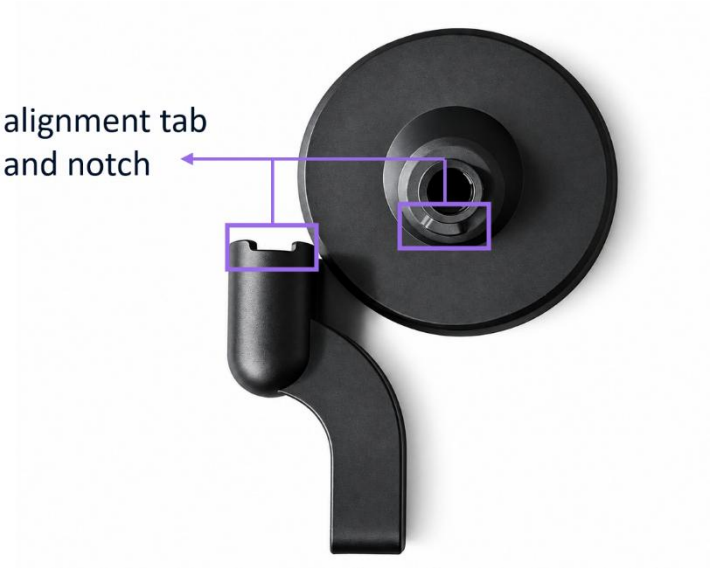


Figure 4: Alignment Tab and Notch



Figure 5: Assembled Ant Kit

 Copyright © 2026 Soundskrit Inc

3. Software Introduction

The Soundskrit Demo Kit Interface is a platform used for evaluating performance of the Ant demo kit. It enables users to quickly test the different algorithms provided by Soundskrit.

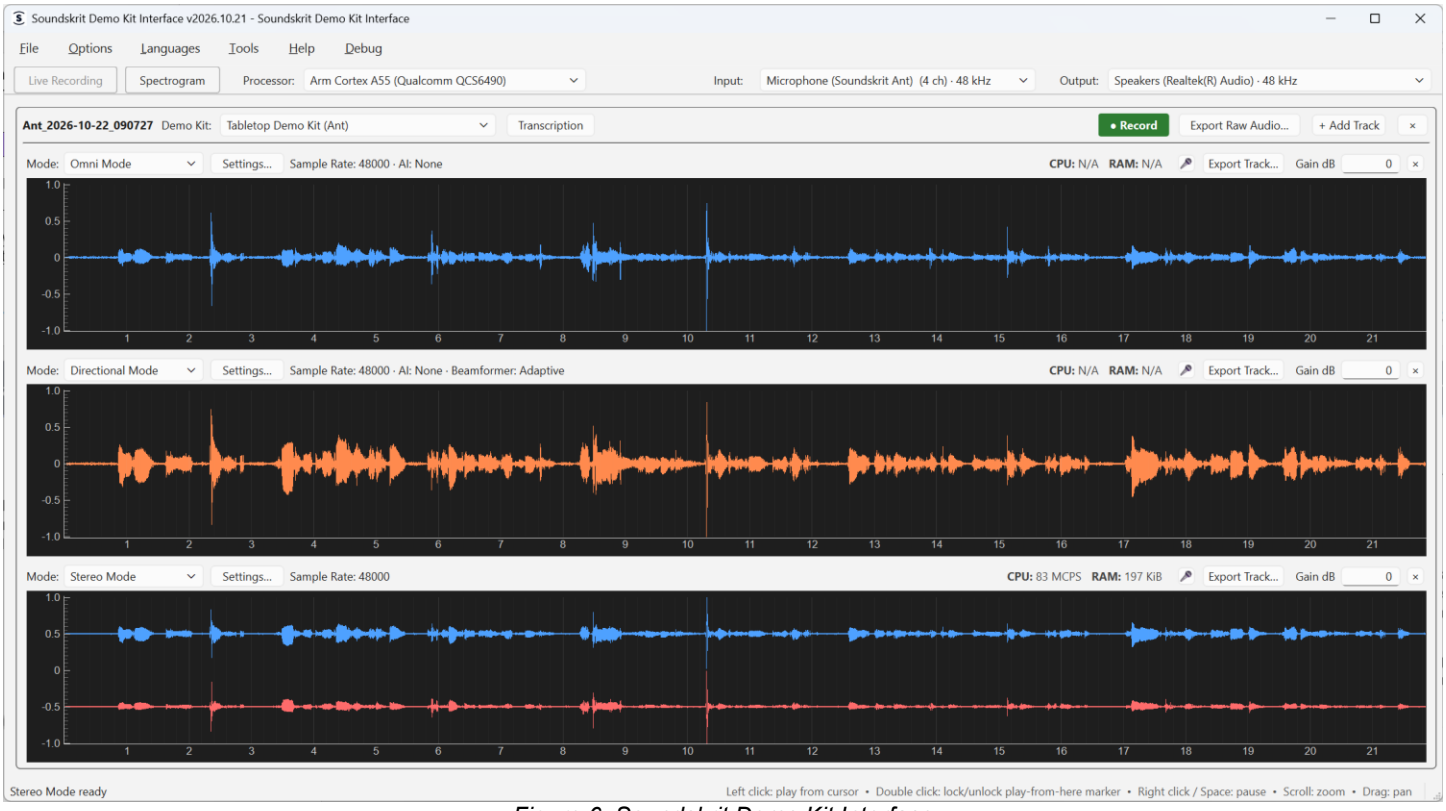


Figure 6: Soundskrit Demo Kit Interface

The software allows users to capture a recording via Live Recording mode and process the raw signals through various algorithms. This operation lets users compare and understand algorithm performance side by side through playback. To facilitate quick evaluations, sample audio files are also provided in the software, allowing users to test the algorithms even without connecting to the Ant demo kit.

The Demo Kit Interface also provides relevant computational metrics across all algorithms, including CPU usage and RAM usage for various processor cores to help customers understand the algorithm requirements in embedded implementation.

For more detailed introduction of Soundskrit Demo Kit Interface, please refer to Downloads → **Soundskrit Demo Kit Interface User Manual.**

 Copyright © 2026 Soundskrit Inc

4. The Ant Algorithm Introduction

4.1 Recording Mode

To help customers understand the performance differences in terms of the use case, Soundskrit provides three recording modes. These algorithms are all optimized for isolating desired voice pickup and suppressing background noise. Below is a detailed overview of these algorithms.

Mode Descriptions*	
Omni Mode	Outputs the equalized omnidirectional microphone signal, used for multiple directions speech capture or as a reference for performance comparison.
Directional Mode	Provides multiple voice pickup options to capture high-quality audio while reducing background noise.
Stereo Mode	Uses a consistent cardioid left/right pickup pattern to create a natural sense of space, ideal for music, room recordings, and other immersive content

* *Please refer to the computational requirement shown in the GUI.*

In **Directional Mode**, users can choose from three beamforming options - **Dipole, Cardioid, and Adaptive** - each designed for different recording scenarios.

- **Dipole:** Captures sound from two opposite directions simultaneously, making it ideal for conversations between two people facing each other across the microphone.
- **Cardioid:** Delivers excellent voice capture performance for sound sources positioned directly in front of the microphone.
- **Adaptive:** Uses a supercardioid pickup pattern to capture high-fidelity audio, even in the presence of plosive sounds.

To select a beamformer, navigate to **Settings** in the track under Directional Mode and choose the desired option. For more information, refer to **Section 5.2.3**.

 Copyright © 2026 Soundskrit Inc

4.2 AI Denoising

The GUI comes equipped with AI denoising models that are divided into three categories: Small, Medium, and Large. These models can be cascaded on top of a chosen Mode - Omni or Directional. The table below shows the detailed description for each AI model.

AI Denoiser Description*	
Small	Small AI model for noticeable background noise suppression, with some distortion and artifacts.
Medium	Medium AI model for enhanced background noise suppression, with less distortion and artifacts
X-Large	Large AI model for premium background noise suppression, with minimal distortion and artifacts

** Please refer to the computational requirement shown in the GUI*

4.3 Cardioid Beamformer Characterization

The Ant combines directional and omnidirectional microphones to achieve an exceptionally high SNR of 80 dB and maintain a consistent cardioid pickup pattern across the audio frequency range. This polar pattern creates a strong rear null, effectively rejecting sound from behind the microphone. By achieving this directional response without relying on noise reduction processing, the Ant delivers natural, distortion-free, high-quality recordings.

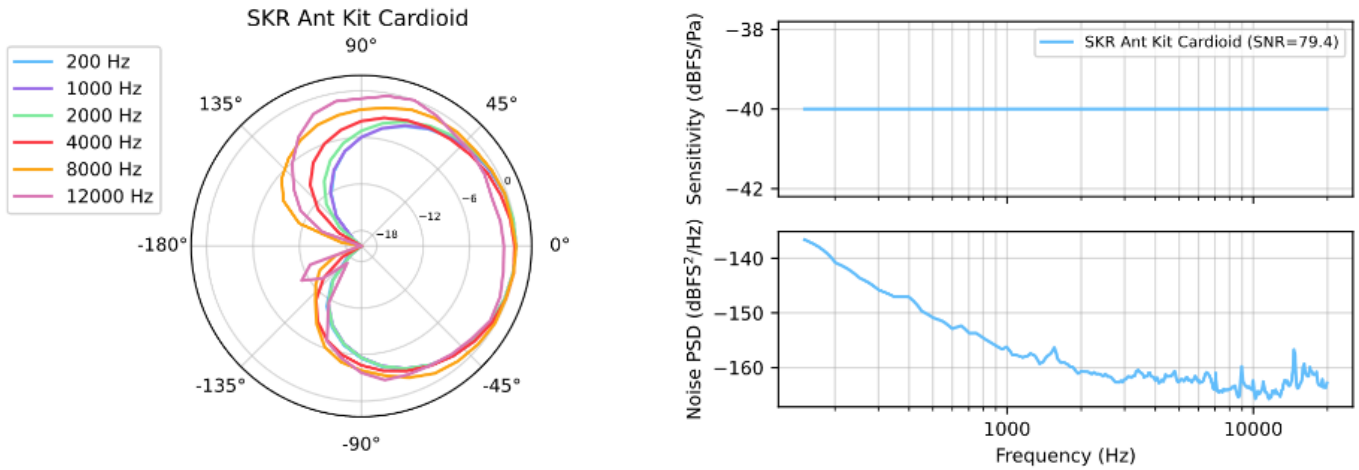


Figure 7: Cardioid Polar Patten and Sensitivity of the Ant Kit

 Copyright © 2026 Soundskrit Inc

5. Setup Guide

5.1 Installation

Download and launch the Soundskrit Demo Kit Interface installer file from Downloads on Soundskrit's website and follow the installation steps. A prompt may appear requiring approval for an unknown publisher.

Assemble the stand: fix the arm to the base with the included screw, then plug the Ant module into the USB-C receptacle on the arm with the button side facing the talker.

Connect the stand to your PC using the included USB-C to USB-A cable.

To start the software, search from the Windows start menu for 'Soundskrit Demo Kit Interface' or use the desktop shortcut generated by the installer.

5.2 Audio Performance Evaluation

There are **three ways** to get audio for audio performance evaluation.

5.2.1 Option 1: Load built-in audio samples

Users can find pre-recorded audio samples and load them in the Soundskrit Demo Kit Interface for quick performance comparison without the Ant kit connected. To find the audio samples, click **File** in the top-left corner, and choose **Samples Recording** then **Tabletop Demo Kit (Ant)** to get the audio sample for Ant kit.

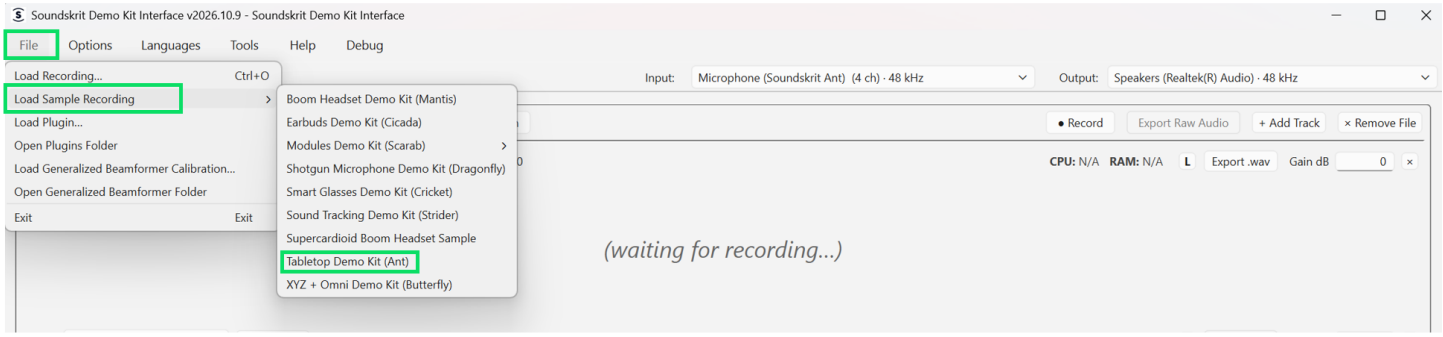


Figure 8: Audio Samples in Soundskrit Demo Kit Interface

3QUEST samples assess speech quality and noise suppression in typical noise. In a 3QUEST test, a talker speaks a set of standard sentences while realistic background noise is played around the device. The audio sample provided in the GUI is at signal-to-noise ratio for speech level to background noise: 26dB (standard 3Quest setup). The SNR is computed at the HATS mouth reference point (25mm in front of the mouth).

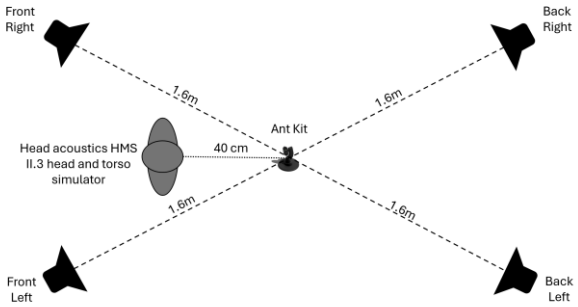


Figure 9: 3Quest Testing Setup

 Copyright © 2026 Soundskrit Inc

5.2.2 Option 2: Load an External .wav File

Users can upload external .wav file for audio processing. The .wav file must be a raw signal recording captured from the Ant demo kit.

Please note, if the external audio file is not recorded by Ant demo kit, the audio file will only be marked as ‘External’, and no demo kit can be chosen for it. In this case, external audio file could be set as benchmark reference to compare the audio performance between Soundskrit Ant Kit and other audio solutions.

5.2.3 Option 3: Record Live with the Ant

Use Live Recording (see Figure 7) to capture audio with the Ant and process it in real-time.

1. Click **Live Recording** to open the recording window. By default, three tracks are configured to compare performance across the algorithms in parallel.
2. Click **Record** to start and **Stop** to end. The audio is distributed across the tracks with preset algorithms applied. All audio tracks are normalized to facilitate easy comparisons. Recording again replaces the previous take.
3. In each track, click **Settings** to enable the AI denoiser in addition to the original audio processing. For tracks operating in **Directional Mode**, users can also configure the **Beamformer** parameter to select different beamforming options for comparison.
4. Click on each track to play the processed audio from that point and switch between tracks to understand the difference across modes.
5. Click **Export Raw Audio** to keep all six raw channels (re-loadable later for processing), or **Export .wav** to save a single processed track.

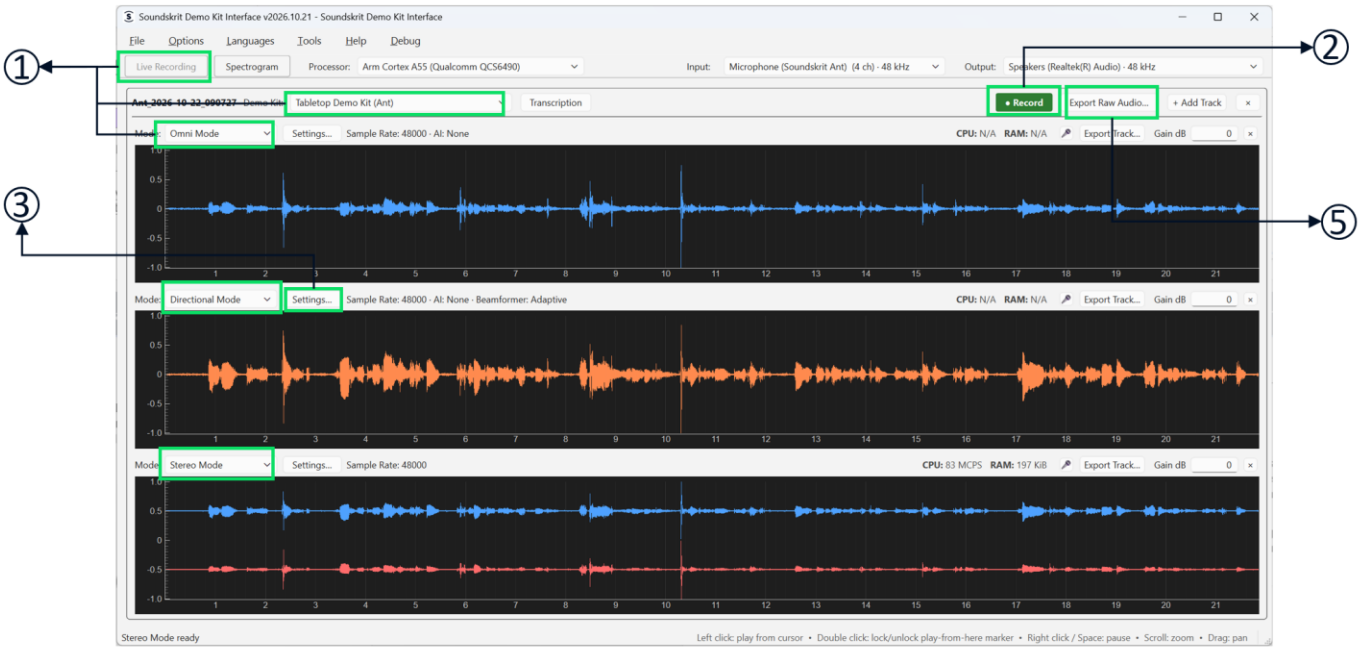


Figure 10: The Ant Setup in Live Recording

 Copyright © 2026 Soundskrit Inc

6. Troubleshooting

This section provides solutions to common issues encountered during installation and operation of the demo kit.

Problem	Possible Cause	Solution
Soundskrit Demo Kit Interface doesn't show Microphone (Soundskrit Raw) in the Input	Ant is not correctly connected to PC	Verify that the Ant module is fully plugged into the stand and that the cable is connected between the stand and the PC.
Cannot get default tracks after loading external audio file recorded by Ant	'Demo Kit' is not chosen as Ant	Set Ant as the demo kit.
Cannot find Ant in Demo Kit drop down menu	The version of the interface is old	Update the version to latest one by go to Helps and click Check for Update, the Ant is available after v.2026.10.21

7. 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.

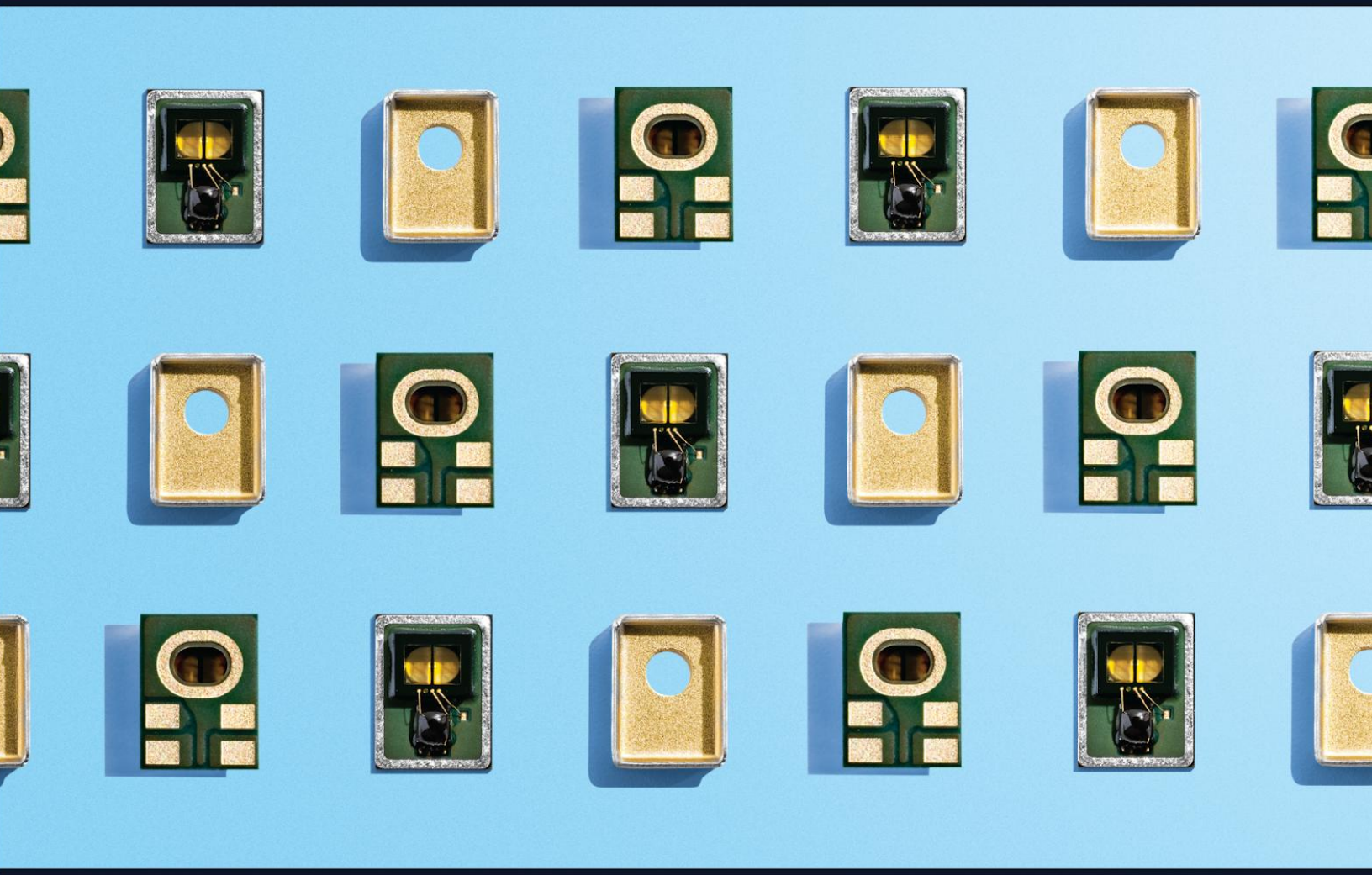
8. Revision History

Revision Label	Revision Date	Sections Revised
-	Oct 2026	Initial release

 Copyright © 2026 Soundskrit Inc

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.