

Technology Overview

The CADScor® System is an advanced acoustic-based diagnostic aid to easily and quickly rule out significant coronary artery disease (CAD) at point of care with a **96.2% Negative Predictive Value (NPV)**¹



CADScor Calculation Input²



Heart sounds are recorded by attaching the device to the chest at IC4-L



The recording sequence is less than three minutes long and divided into a prerecording and 4 recording loops

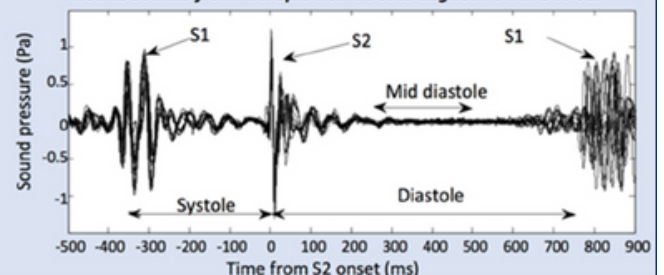


Once sounds are recorded, the preprocessing part of the algorithm organizes the heart sounds for analysis through segmentation and filtering

Pre-processing of heart sound recordings:

- Segmentation of the recording into systoles and diastoles.
- Alignment of the heart sounds to S2
- Identification of the mid diastolic period
- Filter the signal

Hearts sounds from multiple heart beats aligned relative to S2.



Acoustic Data²



After preprocessing, the acoustic features are extracted from the sounds and an acoustic score is constructed using linear discriminant analysis (LDA)

Cardiovascular Characteristic	Description	Acoustic Features
Coronary flow induced turbulence	Diastolic power spectrum and complexity analysis. Predominately diastolic coronary murmurs and turbulence. Systolic right coronary artery stenosis.	Specslope ; Slope of diastolic power spectrum FPR ; Diastolic low frequency power ratio PCARand ; Complexity SampEn ; Sample entropy SysFPR ; Systolic low frequency power ratio
Movement and filling patterns; Stiffness	Valve closing patterns. Ischemic signature of 4 th heart sound amplitude. Myocardial movement.	S2Freq ; Frequency distribution of the second heart sound. S4Amp ; Amplitude of the fourth heart sound S2Vib ; Valve induced myocardial vibration
Heartbeat Timing	Part of the segmentation (Acoustic cardiogram ACG) of heart sounds. General cardiac health.	HRV ; Heart rate variability

Acoustic Score

CAD-score²



Patient Data



Acoustic Data



The acoustic score is combined with gender, age and hypertension status using logistic regression to produce the CAD-score

www.acarix.com

Ref: 1. User manual US-FDA v.12.Y. 2. Winther S et al. Advanced heart sound analysis as a new prognostic marker in stable coronary artery disease. European Heart Journal – Digital Health (2021) 2: 279–289