

RTS ANALYZER

Professional Audio Analysis for iPhone and iPad

USER MANUAL

Version 1.0 | October 2026

Rock Tribe Sounds

rocktribesounds.com

About This Manual

This manual describes RTS Analyzer version 1.0 for iPhone and iPad. It explains the live analyzer, file analysis workflow, musical and stereo tools, history and event detection, Compare and Ghost references, persistence, export, calibration, privacy, and common troubleshooting steps.

IMPORTANT RTS Analyzer is a professional analysis utility, but it is not presented as a certified sound-level meter and does not claim IEC 61672 certification. Calibration is a saved reference offset; raw digital dBFS, FFT, LUFS, and dBTP measurements remain unchanged.

The screenshots in this manual show the released RTS Analyzer interface. Layout may adapt between iPhone and iPad, portrait and landscape, while the underlying measurement concepts remain the same.

Document item	Value
Product	RTS Analyzer
Manual version	1.0
Platform	iPhone and iPad
Minimum OS	iOS / iPadOS 18.0
Developer	Rock Tribe Sounds
Support	support@rocktribesounds.com
Privacy	rocktribesounds.com/privacy-policy/

Contents

- 1. What RTS Analyzer Is
- 2. Getting Started
- 3. Interface Overview
- 4. LIVE Analysis
- 5. Spectrum
- 6. Spectrogram
- 7. RTA
- 8. Scope and Level
- 9. Musical Analysis
- 10. Stereo Analysis
- 11. Focus, Tracking and Markers
- 12. History and Events
- 13. File Analyzer
- 14. Compare, Loudness Match and Ghost
- 15. Saved Sessions, Export and Calibration
- 16. iPad Analysis Desk
- 17. Privacy and Data Handling
- 18. Measurement Notes and Limitations
- 19. Troubleshooting
- 20. Glossary and Quick Reference

1. What RTS Analyzer Is

RTS Analyzer is a real-time and offline audio analysis environment designed for musicians, producers, mixing and mastering engineers, and technical audio users. It combines multiple measurement views in one app so you can move from broad spectral inspection to detailed loudness, stereo, pitch, history, event, and comparison workflows without leaving the project context.

Core capabilities

- LIVE analysis from the built-in microphone or a compatible audio input route.
- Spectrum, Spectrogram, RTA, Scope, Level, Stereo, Musical Pitch and Harmonic analysis.
- Frequency Focus, peak/family tracking, and up to four frequency markers.
- Rolling History with event markers and exact event navigation.
- Offline File Analyzer for supported WAV, AIFF, FLAC, MP3, AAC/ADTS and M4A/AAC files.
- Loudness measurements including LUFS, True Peak, LRA and PLR where the source supports them.
- Compare A/B, Overlay, Difference and display-only Loudness Match.
- Ghost snapshots that remain visible as a reference overlay.
- Saved local state, sessions, exports and a reference calibration offset.

NO ACCOUNT REQUIRED RTS Analyzer does not require a user account or sign-in. The released app does not use advertising, analytics, tracking, or a Rock Tribe Sounds cloud backend.

2. Getting Started

Install and launch

1. Install RTS Analyzer from the App Store.
2. Launch the app. The main workspace opens with access to LIVE, FILE, COMPARE, HISTORY and Settings.
3. For live analysis, open LIVE and tap Start. iOS asks for microphone permission the first time live capture starts.
4. Grant microphone access to analyze the current input route. Audio is analyzed locally and is not uploaded to Rock Tribe Sounds.
5. Choose the analyzer view you need and use Freeze, zoom, focus, history, or export tools as required.



LIVE Spectrum on iPhone. The live workspace combines the plot, measurement controls and contextual analysis information.

Audio route and sample rate

RTS Analyzer analyzes the actual input format reported by iOS. Hardware may ignore a preferred sample-rate request. The app uses the real route format that becomes active rather than assuming that a requested rate was accepted.

EXTERNAL INTERFACES Compatible iOS audio interfaces can be used when recognized by the system. Capabilities depend on the interface, cabling and iOS route. Rock Tribe Sounds does not claim that every USB or external stereo interface has been physically validated.

Background behavior

Live capture intentionally stops when the app enters the background. When you return to RTS Analyzer, restart LIVE capture if required. This prevents the app from claiming background recording behavior that it does not provide.

3. Interface Overview

The root navigation separates tasks by intent rather than by measurement technology. This keeps live capture, file analysis, comparison and historical review independent while allowing measurements and references to be reused where supported.

Area	Purpose
LIVE	Analyze the current microphone or audio-input signal in real time.
FILE	Import a local audio file and perform offline analysis.
COMPARE	Compare analyzed sources or saved snapshots using A/B, Overlay and Difference.
HISTORY	Review recent live measurements and detected events on a rolling timeline.
Settings	Access app settings, saved sessions, calibration and support-related information.

Common interaction patterns

- Freeze captures the current displayed measurement state without redefining the underlying measurement formulas.
- Pinch gestures adjust plot zoom where supported; Reset Zoom returns to the default range.
- Portrait emphasizes the active plot and direct controls; landscape provides more room for inspectors and history.
- On iPad, the Analysis Desk keeps a larger analyzer workspace and a persistent inspector visible.

4. LIVE Analysis

LIVE is the entry point for real-time measurement. One input engine feeds the analyzer pipeline; changing views does not start separate audio engines or independent FFT processes.

Starting and stopping

1. Open LIVE.
2. Tap Start. If asked, allow microphone access.
3. Confirm that the plot and level values react to sound.
4. Switch between Spectrum, Spectrogram, RTA, Scope, Level, Stereo and Musical tools without stopping the input.
5. Tap Stop when live analysis is no longer needed.

Freeze

Freeze holds the current measurement frame so you can inspect values without the display changing. Unfreezing returns to live updates. A frozen live frame and a selected historical frame are separate states.

Meter color convention

Color	Meaning in RTS Analyzer
Blue	Very low level, below approximately -48 dBFS.
Green	Normal/safe digital level range up to approximately -12 dBFS.
Amber	High level approaching digital full scale.
RTS Red	A currently clipped measurement block or clip indication.

These colors are product UI conventions, not a standardized loudness classification.

5. Spectrum

Spectrum shows the current frequency-domain energy distribution. The default frequency axis is logarithmic from 20 Hz to Nyquist, with an optional linear view. The vertical display covers the digital level range down to approximately -120 dBFS.



Spectrum view with live spectral trace and controls.

Key controls and readings

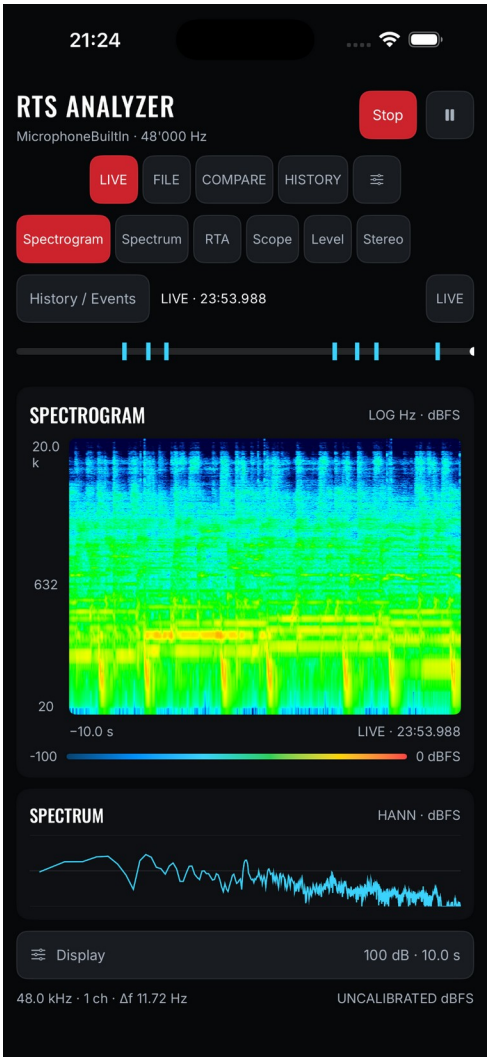
- Live spectrum shows the current FFT-derived spectrum.
- Peak Hold retains the highest observed spectral levels until reset or according to the active behavior.
- Time smoothing uses power-domain smoothing options such as Off, 0.25 s, 0.5 s, 1 s and 2 s.
- Frequency smoothing can use fractional-octave smoothing such as 1/12, 1/6 or 1/3 octave.
- The frequency cursor reports the actual FFT-bin-related frequency and level at the selected position.
- Pinch zoom and Reset Zoom adjust the inspected frequency range without changing the measured source.

Practical uses

Use Spectrum to locate resonant areas, observe tonal balance, compare harmonic structures, inspect low-frequency buildup, and place Focus or tracking tools around a region of interest.

6. Spectrogram

Spectrogram adds time to the frequency view. Frequency is displayed vertically or along the frequency axis depending on orientation, while color represents level. The RTS rainbow scale moves from cooler colors at lower energy toward green, yellow, orange and red at higher energy.



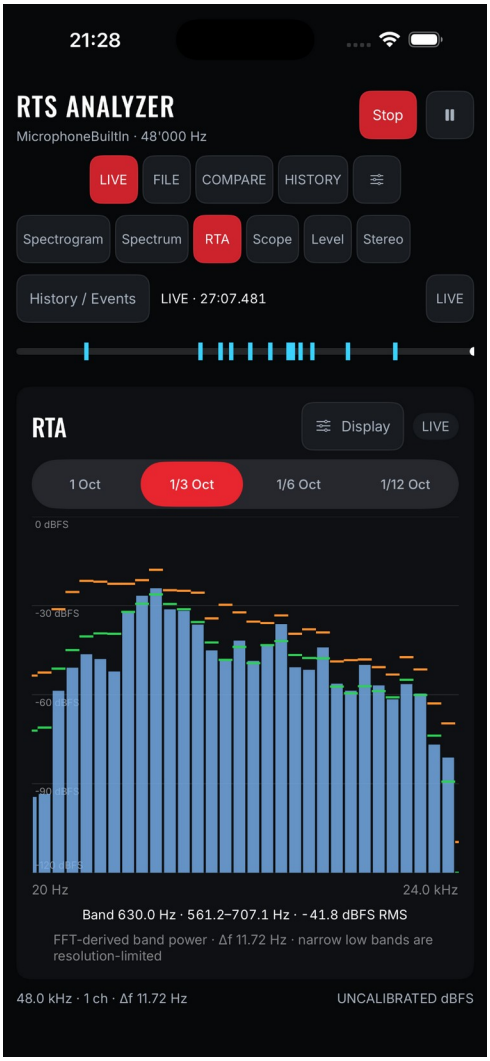
LIVE Spectrogram. The time-frequency history makes evolving harmonics, transients and broadband energy easier to see.

Using the Spectrogram

- Adjust the visible dynamic range when you need more contrast between low-level and high-level components.
- Use zoom to isolate frequency regions.
- Freeze the current view when you need to inspect a stable frame.
- When Focus is active, the selected frequency region remains emphasized and out-of-focus areas can be visually reduced.
- In History, the historical spectrogram uses stored spectral snapshots; it is a bounded historical display rather than an unlimited recording.

7. RTA

RTA presents frequency energy in octave or fractional-octave bands, which is useful for broad tonal-balance work and room/system-oriented inspection.



RTA in 1/3-octave mode.

Band resolutions

RTS Analyzer supports 1/1, 1/3, 1/6 and 1/12-octave band displays. Band power is calculated from the shared FFT data, so RTA and Spectrum are different views of the same input analysis rather than separate captures.

When to use RTA

- Quickly identify broad low-, mid- and high-frequency balance.
- Compare overall spectral tilt without reading every FFT bin.
- Inspect energy around standard octave-band regions.
- Use Peak Hold and smoothing to stabilize a changing source when appropriate.

8. Scope and Level

Scope

Scope displays the actual time-domain sample waveform. Available time bases include 5, 10, 20, 50 and 100 ms, with pinch adjustment across an extended range. An optional rising zero-crossing trigger can stabilize periodic signals.

- The amplitude scale is normalized around digital full scale.
- Stereo sources show channel waveform information; a mono source is represented without inventing independent stereo content.
- Pixel min/max rendering preserves waveform extrema when many samples map to one screen column.

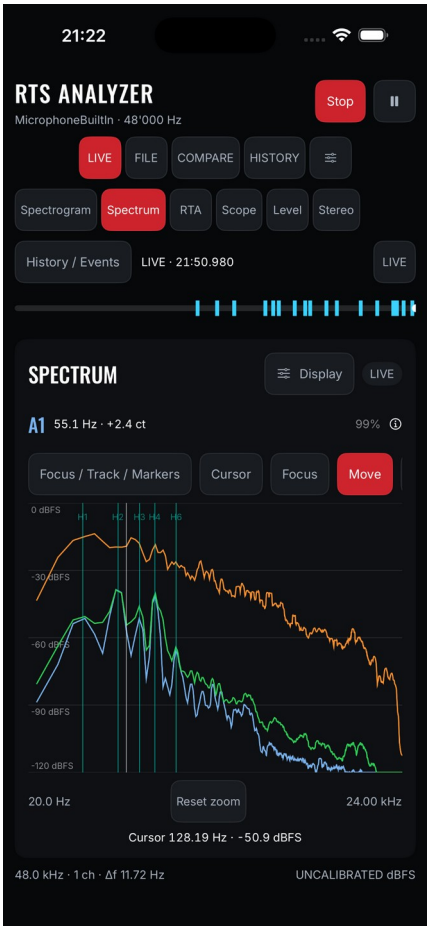
Level

Level provides channel-oriented sample-peak and RMS measurements, Peak Hold, clipping state and cumulative clip-sample information. Clipping uses the digital threshold abs(sample) >= 1.

DIGITAL CLIPPING The clip indication describes the digital samples seen by the app. It does not prove exactly where an analog stage, microphone preamp or converter clipped.

9. Musical Analysis

Musical Analysis estimates a fundamental frequency and maps it to equal-temperament note name, scientific octave and cents deviation. It also exposes measured harmonic components and a Harmonic Spine derived from the same FFT used by the other live views.



Musical Analysis showing detected pitch and harmonic structure.

Displayed information

- Fundamental frequency in Hz.
- Note name and octave using scientific pitch notation.
- Cents deviation relative to the nearest equal-temperament note.
- Confidence / acquisition state.
- Measured harmonic components and their relationship to the detected fundamental.
- Default concert reference A4 = 440 Hz.

Best results

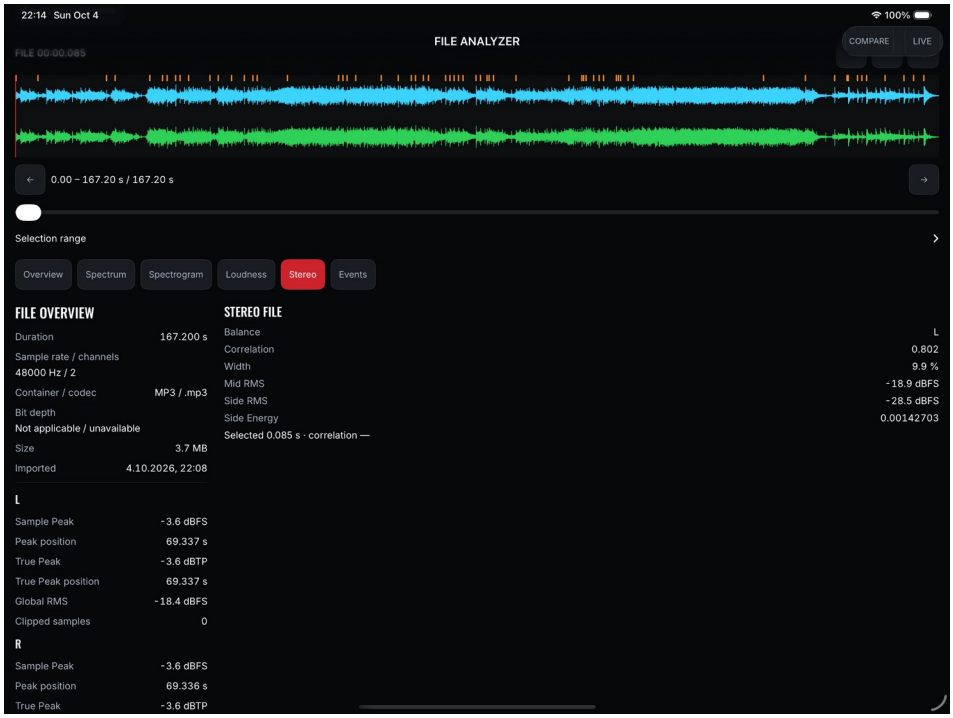
Pitch tracking is intended for clear monophonic or strongly fundamental/harmonic sources. Play or sing one stable note at a time when you want reliable note identification.

POLYPHONIC MATERIAL Chords and other multi-note material can produce "Pitch undetermined", acquiring states, or a dominant partial instead of a chord name. RTS Analyzer 1.0 is not a chord-recognition system.

Very low-level signals, noise, unstable attacks and highly inharmonic material may also remain undetermined rather than forcing an incorrect pitch result.

10. Stereo Analysis

Stereo Analysis helps you inspect left/right balance and phase relationships. It includes correlation, width-oriented measurements, Mid/Side information and a goniometer-style spatial display where the source supports stereo data.



Stereo analysis shown for an imported file.

How to read the main concepts

Metric	Interpretation
Correlation	Indicates similarity/phase relationship between left and right. Values toward +1 are strongly correlated; values toward -1 indicate stronger inversion/anti-correlation behavior.
Mid / Side	Separates common (Mid) and difference (Side) energy using normalized M/S relationships.
Width	Summarizes stereo spread from the measured channel relationship.
Goniometer	Visualizes the relationship of the stereo channels. Shape depends on amplitude and phase relationship.

MONO INPUT A built-in mono microphone does not provide true physical stereo separation. Stereo-specific displays can still reflect the app's mono mapping, but they should not be interpreted as a validated two-channel external measurement.

11. Focus, Tracking and Markers

Focus and tracking tools let you stay on one spectral feature instead of continuously reading the full spectrum.

Focus

- Select a frequency region by setting its boundaries.
- RTS Analyzer finds the strongest plausible local peak in the focus area and can associate it with note/harmonic context when available.
- Band energy is calculated from the selected region using the analyzer's frequency-domain data.
- The Spectrogram can visually de-emphasize energy outside the Focus range.

Tracking

Peak tracking follows a selected spectral peak. Harmonic-family tracking follows confirmed harmonic slots rather than simply jumping to whichever peak becomes strongest. Tracking uses confirmation and limited reacquisition logic so short signal gaps do not immediately create a new identity.

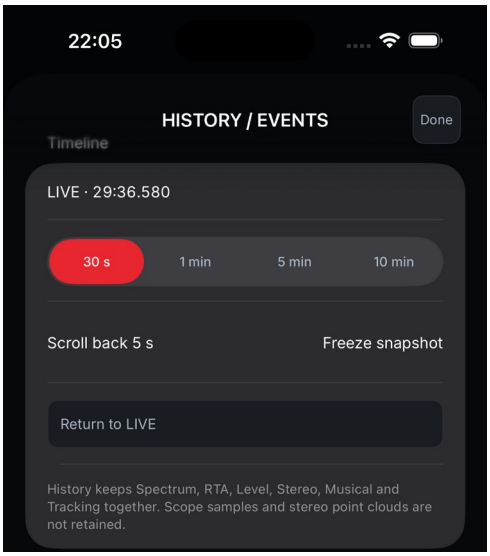
Tracking confidence is a heuristic indication, not a statistical guarantee or musical classification.

Markers

Up to four frequency markers can be placed in the Spectrum. Markers store frequency-based positions rather than screen pixels, so zoom and rotation do not redefine the marked frequency.

12. History and Events

History continuously stores a bounded set of recent live measurement snapshots so you can inspect what just happened without recording raw audio.



History timeline and rolling-window controls.

History duration

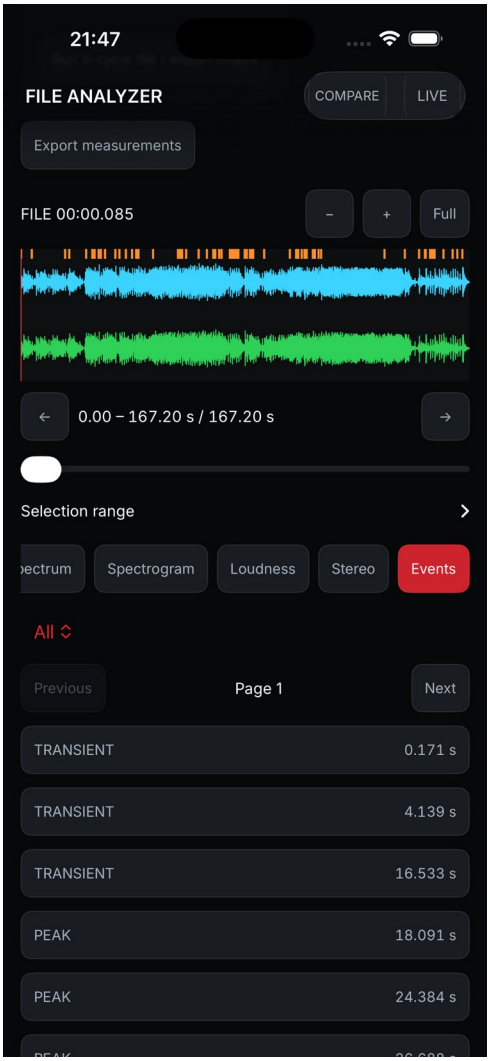
Available rolling windows are 30 seconds, 1 minute, 5 minutes and 10 minutes. History is bounded: when old data has already been discarded, selecting a longer duration cannot restore it.

Timeline navigation

- Drag or scroll back to an earlier measurement time.
- Use an event marker to jump to the snapshot tied to that event.
- Use LIVE to return from historical review to the current input.
- Historical selection and live Freeze are separate states.
- Spectrum, RTA, Level, Stereo metrics, Musical, Focus and Tracking data can be reviewed when they were stored in the snapshot.

HISTORICAL DETAIL Raw Scope sample arrays and stereo point-cloud detail are not stored as full historical streams. Historical views use the measurements that are explicitly retained.

Detected event types



Event list / event navigation example.

Event	What triggers it in version 1.0
Transient	A rapid measured RMS increase (about 9 dB in one analysis hop), with a sufficient peak and a short refractory period.
Peak	Sample peak >= -6 dBFS and below 0 dBFS, with hysteresis and minimum spacing.
Clip	Digital samples at or beyond full scale: abs(sample) >= 1.
Sub Energy	Sustained energy below 30 Hz meeting level, proportion and duration conditions.
Resonance Candidate	A narrow, prominent, stable spectral peak that is not conservatively explained as a detected harmonic family.

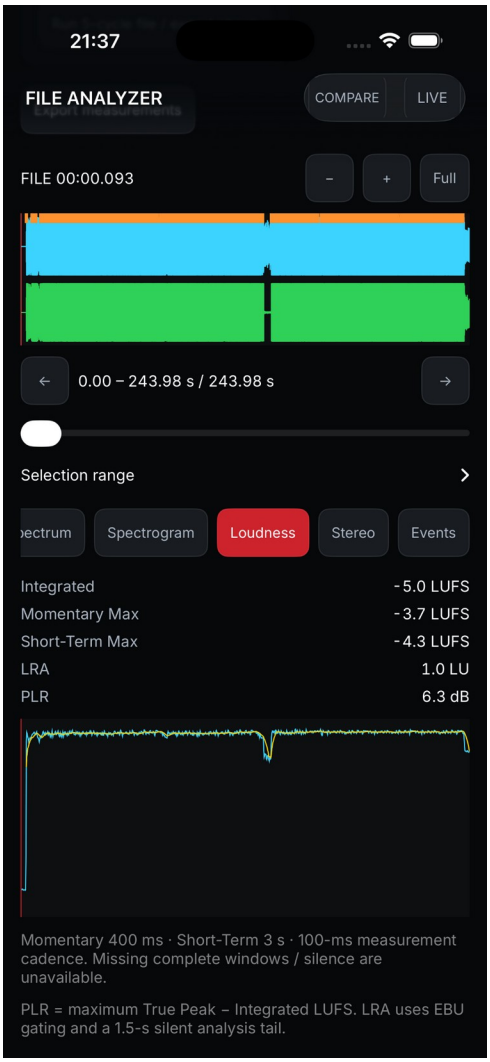
Events are measured signal conditions. They are not automatic mix-quality judgments, instrument recognition, or acoustic diagnoses.

13. File Analyzer

FILE analyzes a user-selected local audio file without using the microphone. Import uses the Apple document picker and reads the selected file locally. The original file is not automatically copied into a Rock Tribe Sounds cloud service or permanently duplicated by the app.

Supported file families

Tested file families include WAV, AIFF, FLAC, MP3, AAC/ADTS and M4A/AAC, subject to file validity and Apple decoder support. Mono and stereo files are supported. The offline analyzer accepts supported rates in the tested 8 kHz to 384 kHz range and files up to 24 hours, with unsupported channel/rate combinations rejected rather than guessed.



File Analyzer loudness view.

Analysis results

- Average and peak spectrum data.
- Spectrogram and waveform/timeline data.
- Sample Peak, RMS and clip counts.
- Stereo and channel measurements where valid.
- Integrated, momentary and short-term loudness where defined.
- True Peak, Loudness Range (LRA) and Peak-to-Loudness Ratio (PLR) where valid.
- Detected events and exact event navigation.

Loudness terms

Term	Meaning
LUFS-I	Integrated loudness over the analyzed program.
LUFS-M	Momentary loudness over a short measurement window.
LUFS-S	Short-term loudness over a longer short-term window.
True Peak / dBTP	Oversampled estimate of inter-sample peak level.
LRA	Loudness Range - a summary of loudness variation.
PLR	Peak-to-Loudness Ratio, derived from peak and integrated loudness values.

UNDEFINED LOUDNESS Silence or insufficient material can make some loudness measurements undefined. RTS Analyzer leaves such results unavailable rather than inventing a number.

Cancel and re-run

An analysis can be cancelled. Partial results from a cancelled/failed run are not presented as a completed analysis. A completed result remains available until replaced or removed by the user workflow.

14. Compare, Loudness Match and Ghost

COMPARE reuses already analyzed results or captured snapshots. It does not create another audio engine or independently re-measure the source during comparison.



Compare Overlay with Loudness Match enabled.

A/B and Swap

Load or assign sources to A and B, then switch between them to inspect measurements in the same analysis context. Swap exchanges the comparison roles without changing the underlying source data.

Overlay

Overlay draws both spectral references together so frequency-dependent differences are visible at a glance.

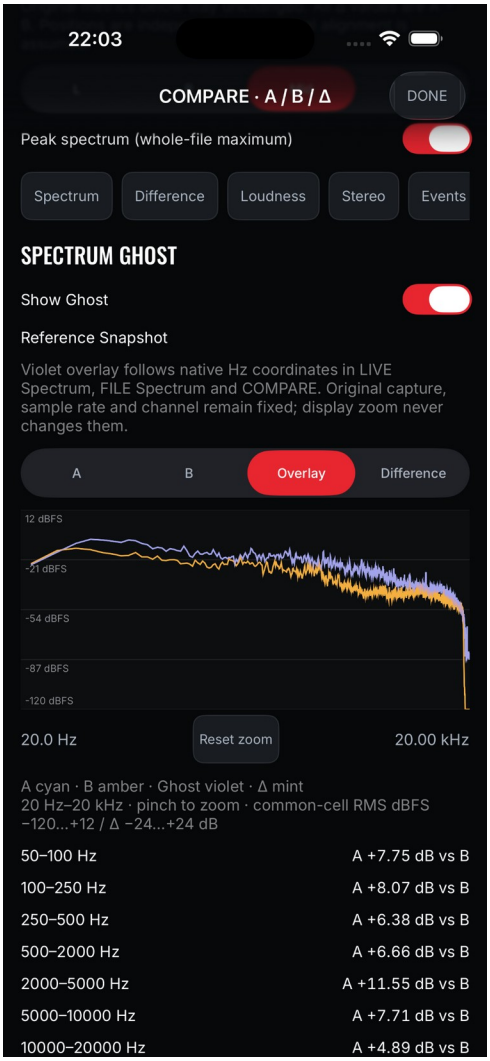
Difference

Difference calculates A minus B using the analyzer's aligned frequency cells and measurement conventions. It is a measurement difference, not an automatic statement that one source is better than the other.

Loudness Match

When both sources have valid whole-file integrated loudness, RTS Analyzer can apply a display gain to B equal to LUFS-I(A) minus LUFS-I(B). This helps compare spectral balance at a matched displayed loudness. The original files and stored source measurements are not modified.

Ghost



Ghost reference overlay remains visible as a captured spectrum reference.

Ghost is an independent captured reference that can be turned on or off. A Ghost snapshot stores measurement data and provenance for the captured state. Zoom, rotation or later navigation do not rewrite the stored frequency coordinates.

- Save A/B snapshots for later comparison.
- Rename a saved snapshot or Ghost reference.
- Delete saved references when no longer needed.
- Replacing an existing saved reference requires explicit confirmation.

15. Saved Sessions, Export and Calibration

Saved sessions and persistence

RTS Analyzer stores supported preferences, calibration state, Compare state, saved sessions and bounded measurement data locally on the device. Saved sessions allow you to reopen supported analysis context without requiring an online account.

Not every transient visualization is preserved as a full raw-data recording. For example, historical Scope samples and full stereo point clouds are intentionally not retained as unlimited streams.

Export

Exports are initiated by the user and use the native iOS Share Sheet. The final destination is chosen by you. If you select a cloud provider in the Share Sheet, iOS/provider behavior applies; Rock Tribe Sounds does not automatically upload the export.

- CSV export for measurement data where available.
- PNG export for supported plots such as Spectrum, Spectrogram, History Timeline, Compare Overlay and Compare Difference.
- Text / summary sharing for supported measurement summaries.

Calibration

Calibration stores a user-defined reference offset. Use the Calibration panel in Settings when you have an external reference and need the app's reference display to align with that workflow.

CALIBRATION SCOPE Calibration does not alter the raw digital dBFS, FFT, LUFS or dBTP measurements. Acoustic SPL calibration requires an external known reference. RTS Analyzer is not a certified SPL meter.

Use Reset in the calibration workflow to remove the saved offset and return to the uncalibrated reference display.

16. iPad Analysis Desk

On iPad, RTS Analyzer uses the larger display as an Analysis Desk. The central analyzer remains prominent while input/display controls and an inspector can stay visible at the same time. History can span the full width, FILE can combine overview and analyzer context, and COMPARE can present A/B information side by side.



iPad Analysis Desk - larger workspace with live spectrogram and persistent analysis controls.

Orientation

Both portrait and landscape layouts adapt the workspace while preserving the same measurement concepts. iPad layout has been extensively simulator-tested; real iPad audio capture was not part of the documented physical hardware validation for version 1.0.

17. Privacy and Data Handling

LOCAL PROCESSING Live microphone/audio-interface samples are analyzed on the device. Selected files are decoded locally. The released app has no Rock Tribe Sounds network upload flow.

Data / action	RTS Analyzer 1.0 behavior
Microphone input	Analyzed in memory for live measurements; not uploaded to Rock Tribe Sounds.
Imported audio files	Read through Apple Files for local analysis; original file is not automatically permanently copied by the app.
Settings / calibration	Stored locally.
Compare / sessions / bounded measurement data	Stored locally as required for app functionality.
Analytics / ads / tracking	Not used by the released app.
Account / login	Not required.
Sharing	Occurs only after user action through the native Share Sheet; destination is chosen by the user.

Privacy policy: rocktribesounds.com/privacy-policy/

18. Measurement Notes and Limitations

FFT and time/frequency resolution

Spectrum-related views use a finite FFT window and therefore have finite frequency-bin resolution. Narrow low-frequency features and closely spaced components cannot be treated as infinitely resolved measurements. Time smoothing and frequency smoothing change presentation behavior, not the physical source.

Live versus file analysis

Live analysis uses a moving window on the active input. File analysis can aggregate across the whole decoded file. End-of-file handling, whole-file averaging and historical stereo windows therefore differ intentionally from a live frame. Equal-looking values should be interpreted in the context of the measurement scope shown by the app.

Pitch limitations

Observed test accuracy on controlled fixtures does not define a universal tuner specification. Real instruments contain noise, attack transients, inharmonicity and complex overtone structures. Single notes generally produce the clearest result; chords can remain undetermined.

Stereo limitations

A mono input route cannot validate physical stereo phase or channel separation. External stereo behavior depends on compatible hardware. The version 1.0 hardware evidence does not support a claim that every class-compliant interface has been tested.

History limitations

History is bounded and sampled at a display-oriented rate. Exact event-trigger snapshots are stored separately, but History is not a lossless raw-audio recording and does not retain every FFT frame forever.

Event interpretation

Transient, Peak, Clip, Sub Energy and Resonance Candidate events are signal-condition detectors. They are not semantic diagnoses of a mix, room, instrument or production decision.

19. Troubleshooting

Problem	What to try
No live signal	Confirm microphone permission in iOS Settings, check the active audio route, return to LIVE and tap Start again.
Live stopped after backgrounding	This is expected. Return to RTS Analyzer and restart LIVE capture.
Pitch says undetermined	Play/sing one stable note, reduce background noise, avoid chords, allow the note to sustain after the initial attack.
Wrong/unstable pitch on complex material	Use a clearer single-note source and inspect Spectrum/Harmonics to understand competing partials.
External interface not behaving as expected	Confirm iOS recognizes the interface and route. Reconnect if needed. Hardware capabilities vary and not all interfaces are validated.
Requested sample rate is not used	The hardware/route can ignore preferred rates. RTS Analyzer uses the actual active input format.
File will not import	Verify a supported file family, valid file contents, mono/stereo channel count and a supported decoder/rate.
Loudness result unavailable	The material may be silent, too short for the requested metric, or otherwise insufficient for a valid value.
Older History data disappeared	Rolling History is bounded. Increasing the duration later cannot restore snapshots already discarded.
Calibration looks wrong	Reset calibration, then re-enter only a known external reference offset.
Export is not visible in a cloud app	RTS Analyzer hands exports to the iOS Share Sheet. Availability depends on installed providers and the destination you select.

Support

For product support, contact support@rocktribesounds.com. When reporting a problem, include your device model, iOS/iPadOS version, app version, the analysis mode, and a concise description of the source and steps that reproduce the issue.

20. Glossary and Quick Reference

Term	Definition
dBFS	Decibels relative to digital full scale. 0 dBFS is the digital full-scale reference.
FFT	Fast Fourier Transform - converts a time-domain sample window into frequency-domain bins.
Nyquist	Half the active sample rate; the highest representable frequency in a sampled system.
RTA	Real-Time Analyzer using octave or fractional-octave frequency bands.
RMS	Root Mean Square - an energy-related amplitude measure.
LUFS	Loudness Units relative to Full Scale.
dBTP	True Peak level in decibels relative to full scale.
LRA	Loudness Range.
PLR	Peak-to-Loudness Ratio.
M/S	Mid/Side representation of stereo: common content (Mid) and difference content (Side).
Correlation	A measure of similarity / phase relationship between left and right channels.
Ghost	A captured measurement reference that can remain visible as an overlay.
Focus	A selected frequency range for concentrated analysis.
Marker	A user-placed frequency reference in the spectrum.
Event	A detected measured signal condition such as Transient, Peak, Clip, Sub Energy or Resonance Candidate.

Quick reference - recommended workflow

1. Use LIVE + Spectrum to understand the current tonal shape.
2. Use Spectrogram when time evolution matters.
3. Use RTA for broad octave-band balance.
4. Use Musical Analysis for clear single-note pitch and harmonic inspection.
5. Use Stereo for correlation, M/S and spatial relationships on stereo sources.
6. Use History to review recent live behavior and detected events.
7. Use FILE for full-program loudness and offline analysis.
8. Use COMPARE + Loudness Match for reference comparison without altering the source.
9. Use Ghost to keep a captured reference visible while you continue working.
10. Use Export when you need to document or share measurements.

© 2026 Rock Tribe Sounds