Spectral Coherence Control ® Quick Start Guide

Rev 2 December 2023

This Quick Start Guide provides a simple overview of the tool

Spectral Coherence Control® is a trade mark of Planet Venus Audio Technologies® LLC

Spectral Coherence Control® Quick Start Guide

Compatible DAWs, Operating Systems, processors

- Spectral Coherence Control® has been tested to work fully with Reaper, Logic Pro X, and Pro Tools, and is functional in Ableton Lite and other DAWs that support AU, and VST3 plug-ins

- Spectral Coherence Control® has been tested with High Sierra, Mojave, Catalina, Big Sur, Monterey, Ventura, and Sonoma and shown to be compatible

    o Spectral Coherence Control® on Big Sur might have issues if running with the August 2022 'security OS update', but it works fine with earlier Big Sur versions

- Spectral Coherence Control® works with both Intel and Apple silicon (specifically tested the last 4 Intel Macs and with an M1 Max on Monterey, an M1 Pro on Ventura, and an M3 Pro on Sonoma)

General GUI overview

- All parameters that can be adjusted are in white text, parameters that may not be adjusted are greyed out

- In the GUI, the various plot colors are indicators of what is being displayed
    o The white FFT plot shows:
        ▪ the 'unprocessed original audio' characteristics when the 'Preview' button is white;
        ▪ the 'audio distortion removed by Spectral Coherence Control®processing' characteristics when the 'Preview' button is Yellow
    o The red FFT plot is shown when Spectral Coherence Control® is working:
        ▪ it displays the results of Spectral Coherence Control® processing and how the characteristic frequency components have been changed
    o The red FFT plot representing Spectral Coherence Control® operation goes to a flat red line when Spectral Coherence Control® is bypassed
    o The yellow plot that does not move is a representation of the approximate frequency level where Spectral Coherence Control® processing is engaged

- There are four 'global parameters' just under the plotting area; they are the main adjustable parameters and affect all bands equally. User adjustment of these parameters constitutes the core capability of tuning the audio, which determines the overall sound quality of the processed result. Alterations of the 'by Band' Span and Coherence values will more subtly alter the sound and contribute to the character and detail of the resultant audio respectively in Bands that the user adjusts away from the values stored in each Preset file.

- Preset value files all work across the entire audio band, with each Preset file adjusted a bit differently from the others to target a particular type of distortion compensation. They are named to generally reflect the overall processing targeted, although they may have some similar settings in any particular Band to other Preset files. There are about 15 to choose from, depending on the DAW. The user can switch between one set and another relatively quickly and easily. This enables fast comparison of the options, back-to-back, which results in a more rapid optimal tuning process.

Guidelines for optimal tuning

- Determine the general type of coherence processing you would like to accomplish, then select an initial candidate Preset from the types available (Dense Mix, Thick Vocals, Muddy Low end, Forward Mid/Treble).

- When altering 'in Band' values from the stored Preset values, for best results keep changes in any of the parameter values in adjacent bands to be less than 0.5 units apart from their neighbor's values.
    - Maintaining small changes in Band-to-Band values of Span and Coherence will minimize FFT windowing side-effects and provide a smoother transition from one Band edge to another, resulting in a smoother sound output.

- Make sound quality comparison judgements after waiting about 5 seconds for the selected parameter value changes to fully populate the digital filters, this also allows your ears time to adjust. Some differences in sound will be recognized nearly instantaneously upon swapping Parameter sets, but subtle details will follow in the 2 or 3 seconds following the switch. It takes a few seconds more for the typical user to fully recognize the resulting overall sound character after a sudden Parameter switch has been accomplished.

Hints for a better user experience

- Select any Parameter set from the installed library, then listen to the audio being removed by the tool (by selecting the Preview button) to judge the sound quality; avoid listening to the processed result at first. Run through all of the Preset options of the type of processing you are desiring (i.e., Dense Mix), listening to the audio being removed, before deciding which Preset file is best to use as a base for further parameter tuning on any particular track or type of music. Once you have settled on a Preset type, then listen to the processed result to confirm your basic selection. If the sound is generally pleasing, then begin the fine-tuning process.

- Once you have settled on a basic Parameter set, adjust the 4 Global parameters located under the GUI across their range, one by one, to get an idea of what each parameter does:
  - o The sound changes you hear should reflect the name of the parameter, i.e.
    - ▪ The Separation value determines the amount of separation between individual sounds in the music, how distinctly one sound can be heard from the others. A lower number provides more separation, while a higher number provide less separation.
    - ▪ The Resolution parameter value determines the amount of low-level detail that is available in the resultant processed audio. Higher numbers provide more resolution while lower values provide less resolution.
    - ▪ the Reference value determines the amount of processing, with higher Reference values resulting in less processing, and lower Reference values resulting in more audio being processed (i.e., processing deeper into the music)
    - ▪ the Coherence value determines how clear (more coherent is achieved by positive values) or blended (less coherent is achieved by negative values)

- It is most useful to listen to the audio removed from the program material being processed (by selecting the Preview option) when beginning parameter tuning.
  - o Listen and adjust to minimize the desired program material in the audio being removed while processing extracts the various distortion artifacts
  - o Adjust the reference level to determine how many unwanted distortion by-products of the recording and playback processes you want to remove. A lower Reference level removes more distortion, a higher level allows less distortion to be processed and removed

- Next try adjusting the Separation and Coherence values in each Band to alter the sound further. This allows fine tuning of part(s) of the spectrum distinctly from other portions of the spectrum
- Once you have fine tuned by listening to the audio being removed, toggle the Preview switch again to hear the resultant Spectral Coherence Control ® processed audio. Make final tuning adjustments listening to the desired program material.

- Dependent on the amount of distortion present in any track, the net result of Spectral Coherence Control ® processing to remove distortion will likely result in audio with an overall impression of a lower sound level. Removal of the distortion will also likely reveal more recognizable transients and wider dynamic range, which in some circumstances can compensate for a perceived loss of volume. However, if a gain change is desired, the 'Gain' parameter just under the Bypass and Preview buttons allows the user to select a fixed amount of gain compensation for Spectral Coherence Control ® processing. It is adjustable in tenths of a dB for easy fine tuning.
- Spectral Coherence Control ® will work fine on a stereo output channel, and can be used in stereo or mono on additional channels, the number of channels on which it can be used is based on the processor type and clock speed, and installed RAM

See the complete Spectral Coherence Control ® User Guide if you have further questions, or visit the Planet Venus Audio Technology LLC web site which has more detailed information, demonstration videos, and an FAQ section. Happy tuning!

www.planetvenusaudiotech.com