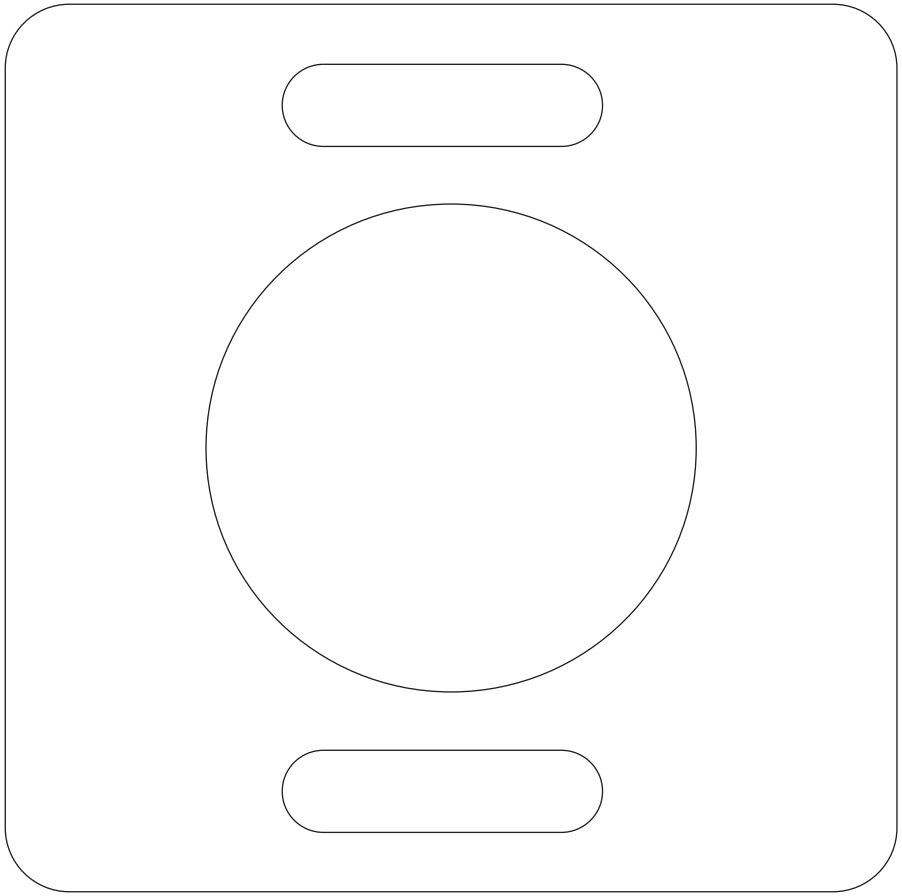
ACUSTICA

FIRE



1
INTRODUCTION

1.1
FIRE SERIES

Processing audio has never been easier thanks to FIRE, the new series of single-knob plug-ins from Acustica. The aim of this series is to create an 'easy-to-use' product line that encompasses Acustica's TOP QUALITY alongside a very intuitive use with just a few simple clicks! The FIRE series plugins will make your life easier and save you time!

1.2
FEATURES

• Single-knob plug-ins with an easy to use and cool interface.
• Four custom and super linear clipping modes available.
• High quality oversampling, up to 1024x (the highest and best on the market) with perfect phase response.
• Hard and Soft knee functions with very low aliasing.
• True peak mode to prevent inter-sample peaks.
• A top quality series with a great and distinctive sound.
• Low latency.

2
FIRE THE CLIP

Audio can be treated with various types of clippers, each one has their own characteristics and the market is full of them. But sometimes they can have more or less evident deficiencies that make them unappealling to the expert user who needs a very high quality according to his standards.

After a phase of careful design and thanks to our technical know-how, we are proud to present Fire the Clip, the second Fire series release whose aim is to create one of the best and most complete 'easy to use', digital 'ultra linear' clipper.

Thanks to its own intrinsic and very dynamic features, you can achieve a competitive loudness level without introducing artefacts and distortion through inter-sample peaks. Fire The Clip was created to overcome the shortcomings of other true peak clippers.

3
CONTROLS

FIRE The CLIP is the second Acqua plugins of the Fire series and is dedicated to clipping.

• 4 different clipper modes
(◯: STD, □: ACU1, △: ACU2, ┼: ECO).

STD> The behaves like a traditional clipping algorithm but more linear, where the tendency is to approximate the highest possible level while keeping below 0 dBFS to prevent any digital clipping; Specifically it is an approximate hyperbolic tangent function (tanh).

ACU1> A Custom Clipping algorithm by Acustica with low aliasing, exceeds ceiling by about +1 dBFS

ACU2> This could be considered as an 'analogue clipper' in the digital domain as it features unfolding functionality that guarantees even less aliasing than in the STD mode and a level compensation mechanism that ensures that the more you go beyond the canonical 0 dBFS, the more the nominal output signal level will be lowered.

ECO> low CPU consumption mode, ceiling lower than the computed clip level .More detail in the Chapter 6 - Appendix.

• **Input-Gain / Auto-Gain**

Amplification before the clipping stage. Increase the input gain to drive the signal into the clipper. Range: -/+ 5dB or -/+ 20dB.

NOTE:

The behaviour of this knob changes according to whether the AUTO - GAIN button is enabled. When pressed, the standard Input-Gain becomes an Auto-Gain knob linking the input and output gain stages with an inverse law. In this way, you can control the amount of non-linear distortion without constantly needing to adjust the input and output gains.

Note that the auto-gain input is different from a standard input-gain control due to the inverted linked output gain stage, which always ensures that whatever gain change is introduced at the plug-in's input, the output level is automatically compensated so that there is no perceived level change. When a positive value is selected, the signal entering the plug-in is brought up by the set amount in dB and the plug-in emulation will operate at a higher internal level. This will result in higher harmonic distortion levels. Contrary to this, negative values will result in lower internal operational levels and lower harmonic distortion levels.

• **Hard/Soft Knee Slider**

This slider switches from Hard (in cases where the signal is strictly limited at the threshold, producing a flat cutoff) to Soft (in cases where the clipped signal continues to follow the original at a reduced gain) clipping functions.

• **Oversampling drop-down menu**

This slider allows you to change the oversampling rate to improve the audio quality increasing the sampling frequency of the clipper and minimize aliasing artefacts (from 2x to 1024x). The1x step bypasses the oversampling functionality.

NOTE: The plugin includes two different oversampling algorithms: ECO and HQ. The first mode has a less CPU consumption but is qualitatively inferior to the second version, which is heavier (more CPU usage) but has a better phase response.

• **Gain Reduction meter**

This meter displays the gain reduction level applied by the clipper. It indicates '0dB' when no gain reduction is applied or in the absence of any input signal. Range: 0/- 5 dB.

• **Output meter**

Displays the input level of the plugin. Range IN: -80dB to +1dB.

• Special buttons

1.IN (5/20): Change the input level range from -/+ 5 dB to -/+ 20 dB

2.CEIL (OFF/0/OL/TP):

OFF> In this mode the calculated clip level is above a defined threshold which is usually equal to 0 dBFS, it occurs after the oversampling stage and will create aliasing.

0> The standard ceiling, this ceiling is just a few dBs higher than the computed clip level to prevent samples higher than a defined threshold under or equal to 0 dBFS. This mode is highly recommended if the clipper is being used at the end of the chain.

0L> Custom ceiling that behaves similarly to the previous '0' mode but with less aliasing.

TP> A true Peak mode added to offer the best performance without any compromise in terms of sound quality to confidently hit your loudness targets without leaving behind any artefacts and distortion-inducing inter-sample peaks. This mode is highly recommended if the clipper is being used at the end of the chain.

NOTE: In order to enjoy the full potential of the Fire The Clip, we strongly recommend using it before a limiter, possibly true peak, with the CEIL button set to OFF mode. 0 and TP modes as well as consuming resources tend by their nature to deteriorate the audio signal.

3.OUT (0/-5): In '-5' mode the output volume is attenuated by -5 dB. In '0' mode no attenuation is applied. This feature was introduced due to the inherent nature of clipping algorithms, the oversampling function, and the fact that the recommended processor chain would include the subsequent use of a true peak limiter.

4.AUTO-GAIN (A): This changes the behaviour of the Input Gain control from a standard Input-Gain to an Auto-Gain. In this mode the input and output gain stages are linked with an inverse law which always ensures that whatever gain change is introduced at the plug-in input, the output level is automatically compensated so that there is no perceived level change.

• **Size**

Adjust the whole plugin-GUI size.
Choose between 3 magnifications (1x - 1.5x - 2x) from the top left SIZE drop-down menu. Once the desired size has been selected, the plugin must be removed and re-load in order to apply the new size.This action affects the currently selected plugin. New instances of the same plugin will open with this size.

• **PK/ RMS**

Press (PEAK/RMS) above the output meter to switch the output meter behaviour from PEAK to RMS metering.

4
HOW TO DOWNLOAD, INSTALL, AND AUTHORIZE YOUR PRODUCTS

Acustica Audio products can be downloaded, installed, and authorized using the Aquarius Desktop application.

The Aquarius Desktop application is a free standalone application that will manage every step in an automatic way without user intervention.

Download Aquarius Desktop Application
www.acustica-audio.com/pages/aquarius

4.1
How to download a product in Aquarius Desktop Application

To download a product using the Aquarius Desktop application go to the purchase page and select the product and format (VST2,VST3,AAX,AU) to install.

In case you can't find your product on the purchase page use the search page.

4.2
How to install a product in Aquarius Desktop Application

The installation is done automatically by the Aquarius Desktop application after the download. As the Aquarius Desktop application creates a temporary file of the downloaded products, known as the stage area, at the moment you want to reinstall a product it will not be necessary to download it again.

4.3
How to authorize a product in Aquarius Desktop Application

The authorization is done automatically by the Aquarius Desktop application after the product installation. You can manage your authorizations using the **Aquarius Web Service**.

4.4
Click HERE or a complete installation user guide

5
SYSTEM REQUIREMENTS

Before starting the installation process, please confirm that your system meets the minimum system requirements to run the plugins please consult the following link:
https://app.box.com/v/AASYSTEMREQUIREMENTS

6
CUSTOMER CARE

6.1
Contact Point

To contact Acustica Audio, always use the single point of contact, which is this help-desk portal:

https://acusticaudio.freshdesk.com/

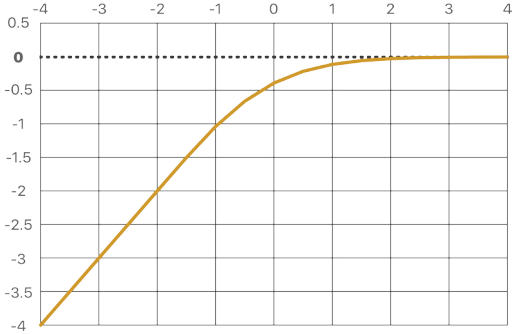
We do not provide official assistance via social networks, public forums, or email accounts. For troubleshooting and issue reporting, check the available solutions in the knowledge base.

6.2
COPYRIGHT AND CREDITS

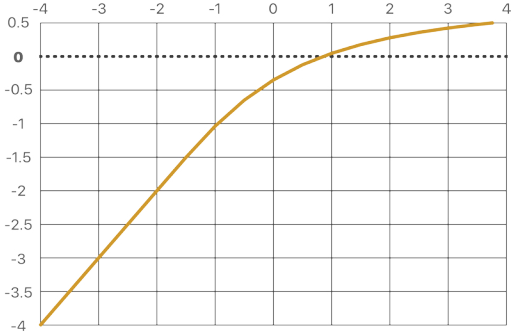
6
APPENDIX
Clipping Functions Plot

For a better understanding of the potential of each clipper we will show the graphs of each clipping function according to the model selected (STD - ACU1 - ACU2 -ECO). As already described, each of them have their own characteristics, so this linear function plots clearly show the differences and peculiarities of each one.

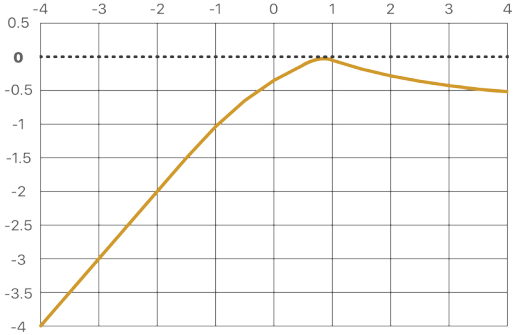
NOTE: All functions have a common ultra-linear part.



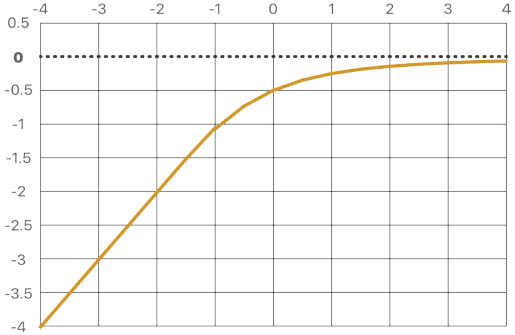
STD mode curve



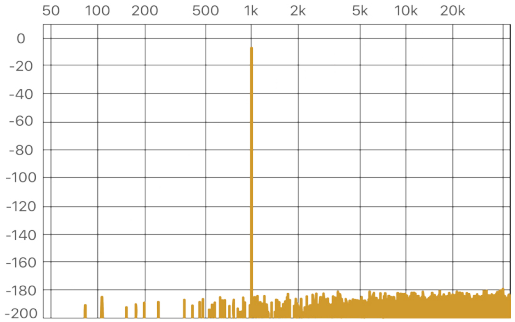
ACU1 mode curve



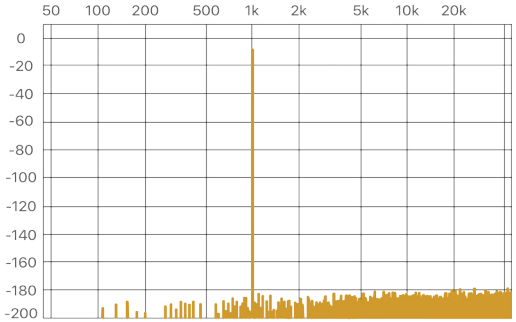
ACU2 mode curve



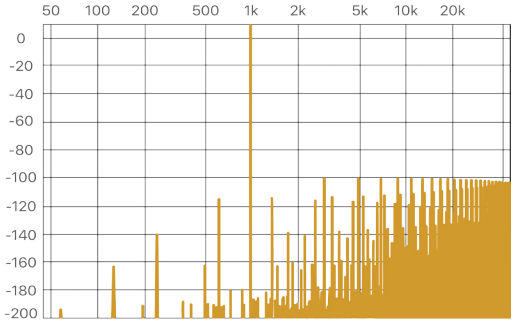
ECO mode curve



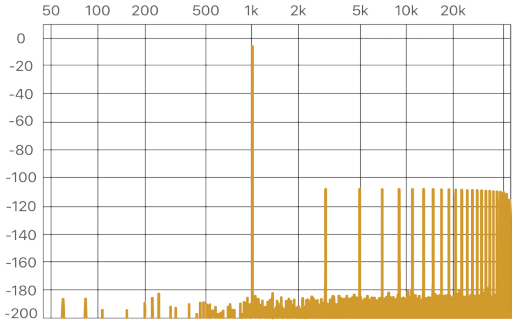
CEILING OL - Harmonic Distortion - Input level -0.6dB



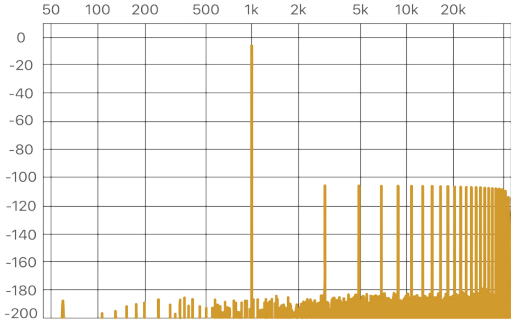
CEILING TP - Harmonic Distortion - Input level -0.6dB



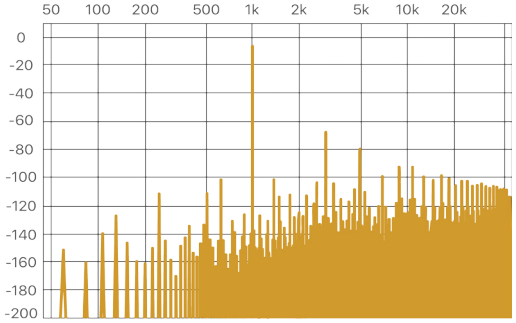
STD Harmonic Distortion - X1



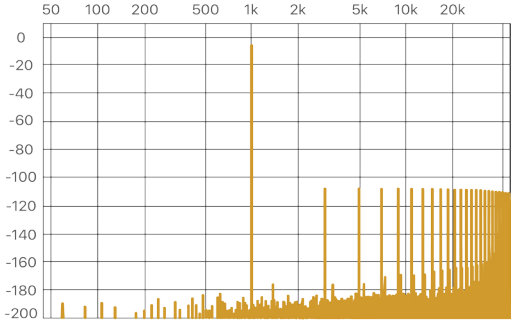
STD Harmonic Distortion - X64 HQ



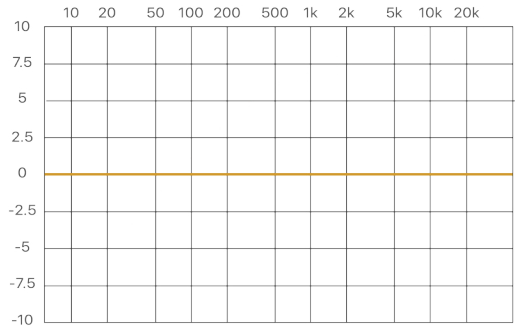
CEILING OL - Harmonic Distortion - Input level 0dB



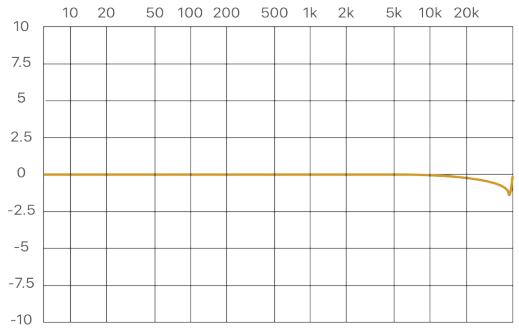
CEILING TP - Harmonic Distortion - Input level 0dB



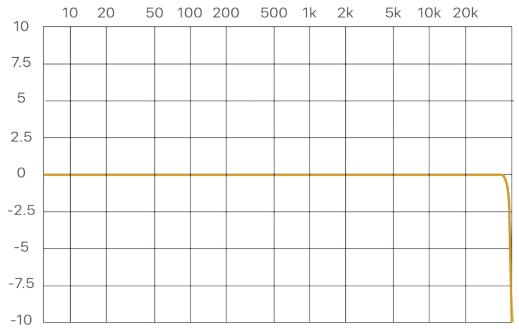
STD Harmonic Distortion - X64 ECO



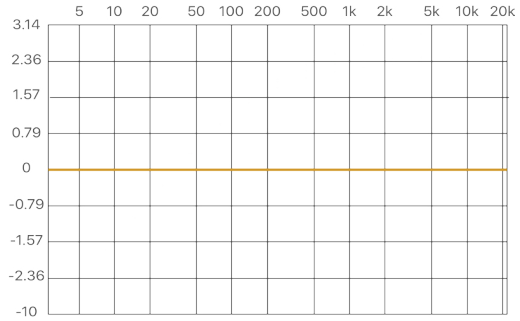
STD Magnitude - X1



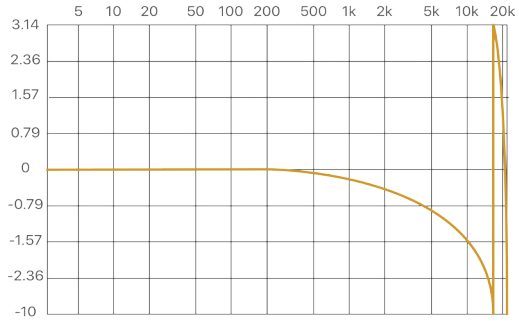
STD Magnitude - X64 ECO



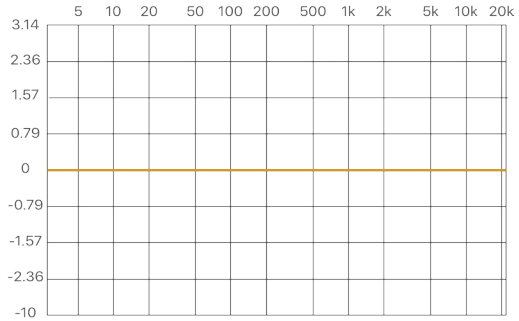
STD Magnitude - X64 HQ



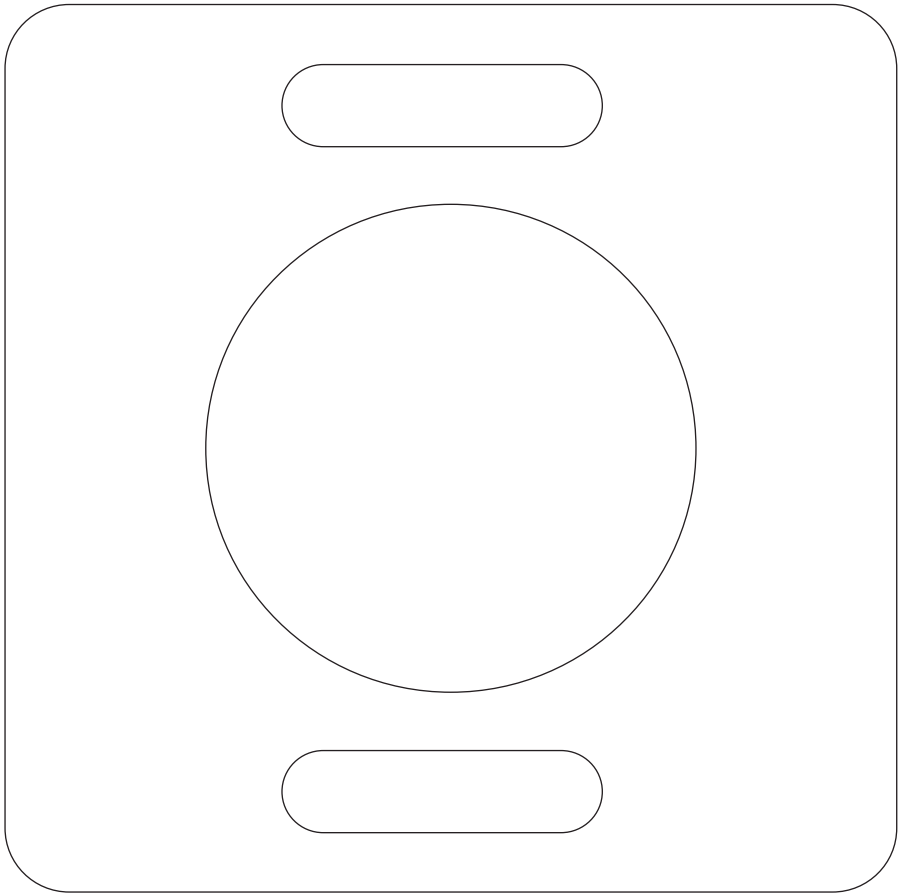
STD Phase - X1



STD Phase - X64 ECO



STD Phase - X64 HQ



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2022