Contents

Overview   Application Tips

Fig.1: Screenshot of **DC-Removal PlugIn** window.

Help file last modified: December 13, 1997.

Most of today's multimedia boards are equipped with low-cost analog-to-digital converters that tend to produce a so-called *DC drift*. This means the analog zero signal is not converted to digital zero, but to a certain positive or negative value called a *DC-offset*. The left part of Fig. 2 demonstrates signal with a positive DC-offset. All other non-zero samples are also shifted by the amount of the *DC-offset*. To avoid signal clipping, the input volume has to be decreased compared to an ideal converter, resulting in a narrowed dynamic range of the recorded signal. It is not uncommon for this to measure five bits of *DC-offset*, corresponding to approximately a 30 dB dynamic range loss! Frequently the converter drift is not constant and varies with time or temperature.

The low-level audio signal including *DC-offset*, or even a high-level signal attenuated digitally can produce very annoying sounds on the playback side due to asymmetry.

The **DC-Removal Filter PlugIn** from **Algorithmix**® is a remedy against those recordings tainted with *DC-offset*. It removes *DC-offset* from sample strings, bringing your signal perfectly to the middle of the system's dynamic range as shown in Fig. 2 on the right.

The *DC-Removal Filter* is designed as a digital high-resolution (80 bits) *highpass filter* with a very low cut-off frequency (a few Hz). It allows the removal of DC components from poor recordings even if the value of the *DC-offset* permanently drifts.
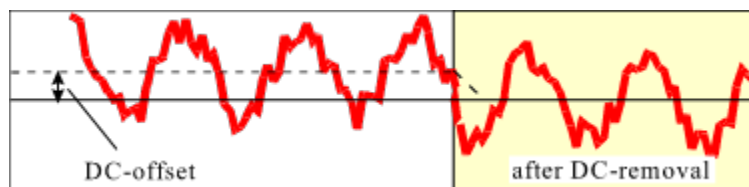

Fig.2: A signal tainted with *DC-offset* (left) and after *DC-filtering* (right).

The presence of the *DC-offset* can be examined separately for the left and right channels in the display. The exact peak values of the *DC-offset* are monitored on the right side of the PlugIn window. These values are permanently updated and hold on the highest level occurring to the current time point. By clicking the *reset* button, you can reset the numerical peak values any time you want. Thereby, the PlugIn begins to cumulate the new *DC-offset* peak value.

Help file last modified: December 13, 1997.

By using the **Algorithmix® DC-Removal PlugIn,** you can easily test the drift of the *analog-to-digital converter* on your soundcard. The best way is to record a steady signal. A sinewave signal is recommended but not absolutely necessary. The recording level of the test signal has to be pretty high, just below any clipping occurs. The amount of the converter drift corresponding to the *DC-offset* can be read after playing back a few seconds of the test signal through the activated **DC-Removal PlugIn** . Dividing the peak value monitored in the PlugIn window by 6 [dB/bit] you get the number of bits lost because of the pure converter quality.

It is recommended that you always use the **DC-Removal Filter PlugIn** as the very first PlugIn in the processing chain to prepare a DC-offset free signal for any other PlugIn. The improvement of the overall sonic quality, especially for low-level signals, can be dramatic.

Due to high-precision design, the **DC-Removal Filter PlugIn** can be chained into the **PlugIn-Station** by default without being afraid of any signal degradation even in the case of perfectly recorded sample strings.

For further information about our other PlugIns and new products visit us on the Internet at:

> **http://www.algorithmix.com**

or send e-mail to:

> **support@algorithmix.com**

  - if you need any information about installation and performance of this product.

> **info@algorithmix.com**

  - if you have general suggestions and questions concerning our product line.

Help file last modified: December 13, 1997.