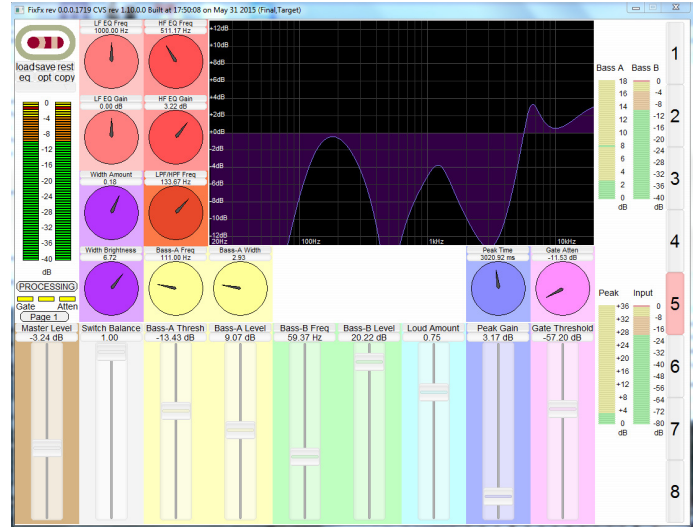
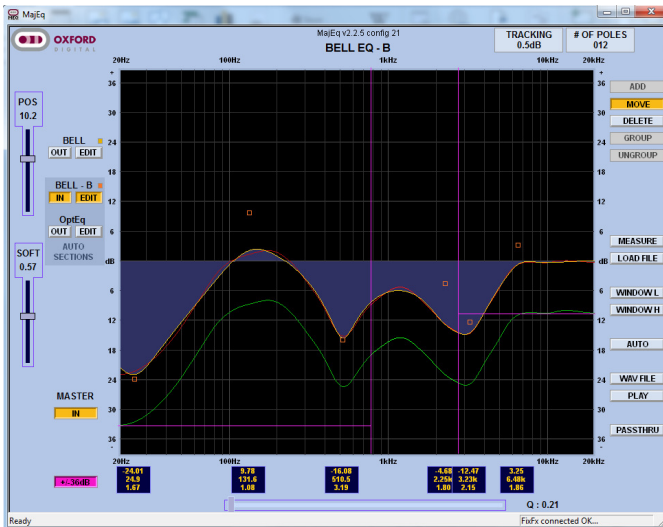


## Rapid adjustment of sound quality for consumer audio equipment to provide excellent results



### Overview

**Maje-Fx** includes advanced DSP algorithms together with an easy-to-use tuning GUI to improve the sound quality of consumer audio devices. The system allows a specific audio enhancement to be rapidly achieved for each model of product, enabling manufacturers to maximise the acoustic performance of their products.

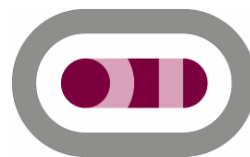
**Maje-Fx** combines automated measurement and EQ correction with a suite of professional audio effects that allows limitations in acoustic performance to be overcome.

The audio effects draw on Oxford Digital's heritage as a leader in professional audio, resulting in excellent acoustic performance enhancement.

### Features

#### Equalisation:

- Built-in audio measurement to capture the frequency response
- Import of measurements (as an alternative) from external systems
- Automatic correction to a target EQ curve within seconds
- Correction can be accomplished via regular parametric EQs or via **OptEQ** which provides a more efficient use of the DSP budget with up to 40% fewer bi-quads for the same error as a parametric solution.
- Additional tone controls and a high-pass/low-pass filter.
- Real-time adjustable EQ from a handle-based GUI provides simultaneous frequency and gain alteration of parametric EQ and fine tuning of results.



## Professional audio effects:

- **Loud-master:** used to make the audio subjectively much louder without increasing the signal peak voltage, helping lower power consumption for battery-powered devices.
- **Peak-master:** used to enhance listening and intelligibility in noisy environments. This gives a dramatic improvement that removes the need for frequent adjustment of local volume controls.
- **Bass-master:** two different types of low frequency effect are used to extend the bass response beyond the range that the device can naturally reproduce:
  - Type A ensures the maximum amount of bass is provided in the audio signal down to the speaker's cut-off frequency
  - Type B allows bass frequencies far below the cut-off frequency to be perceived by the listener
- **Width-master:** used to enhance listening by giving the impression of a bigger stereo space.
- **Noise-master:** removes unwanted noise so that only the audio signal reaches the speakers.

Two GUI windows are provided: one for the equalisation and one for the professional audio effects. A carefully selected number of controls have been supplied to ensure both high customisability and ease of use in rapidly providing excellent results.

The EQ display is synchronised between both GUIs, with measurement and automated correction in one window and non-automated filtering shown in a separate frequency plot.

**MajE-Fx** can provide up to eight unique scenes which allow parameters to be set up for different audio modes. This allows scenes such as 'pop', 'classical', 'jazz' and 'rock' modes for music devices, or 'sports', 'movie', 'news' and 'music' modes for AV devices.

## Applications

**MajE-Fx** is an ideal solution for achieving excellent sound quality from a wide range of consumer audio devices such as:

- Accessory speakers
- Docking stations
- Flat-panel televisions
- Cell phones
- Notebook PCs
- Tablets

**MajE-Fx** is available on the following platforms:

- Oxford Digital's low power, low gate count **TinyCore** audio DSP core
- Wolfson Microelectronics WM8962E
- CSR BlueCore 8670
- Microchip/SMSC DM 960 & DM 970
- Others coming soon

Aspects of the automated equalisation technology featured in **MajE-Fx** are covered by:

International Patent Publication Number  
WO2011/080499

US Patent Number 9,025,792 B2 granted  
5 May 2015

European Patent Application Number 10773134.1