

## AOI Adaptive Output Impedance System by PSI Audio

### Technical description

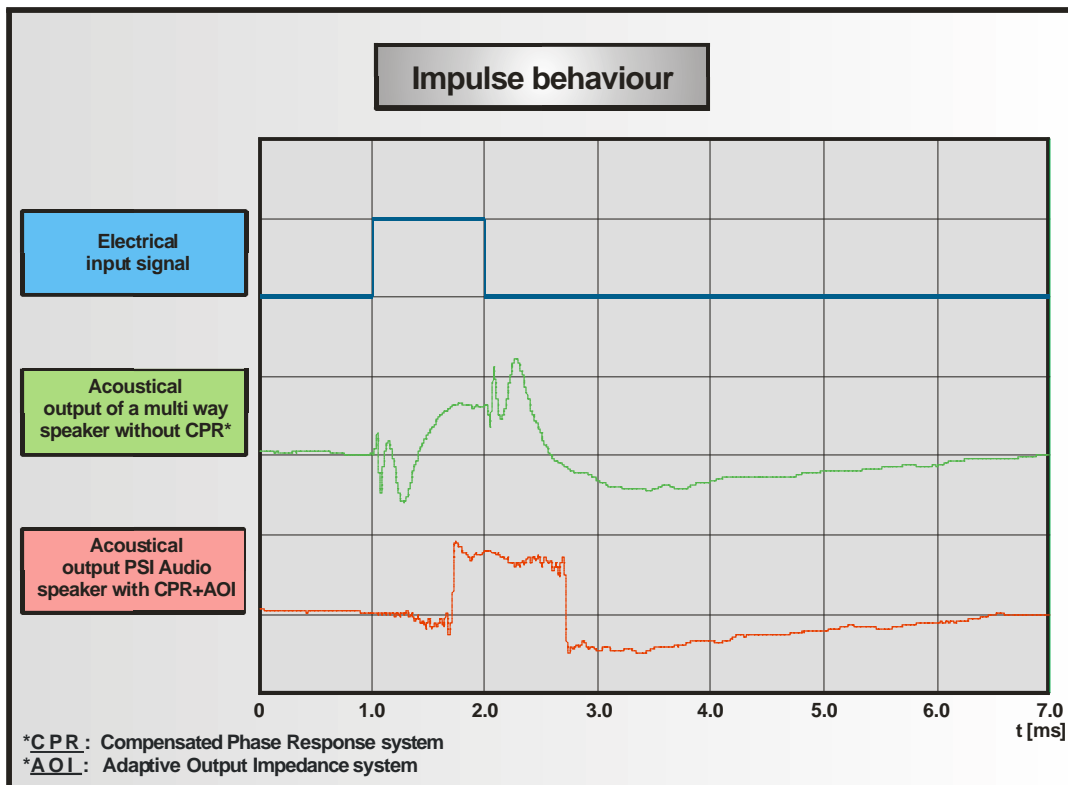
In low frequencies a loudspeaker behaves like a high-pass filter; therefore the damping depends on its mass, on compliances (mechanical and acoustical suspension) and of the source resistance.

In high frequencies, the resonances correspond to the deformations of the membranes. The masses in movement are parts of the mobile mass. Compliances depend on the elasticity of the material. The resistances are the internal damping and the source resistance.

For an ideal damping in a wide area of frequency, the source impedance must be adapted to every range of frequency for every transducer.

The AOI system is constituted by a detection of the movement of the membrane and the moving coil, as well as by a counter reaction filtering. Therefore the damping rate is continuously ideally adjusted according to the frequency.

The AOI system allows the reproduction of sound without transducer coloring over the whole frequency range.



### **Practical advantage**

The PSI Audio speakers featuring the AOI system have much superior impulse behavior to traditional amplifier designs. Whilst the transducer travels to its intended position the AOI circuitry seamlessly adapts the amplifiers output impedance to insure ideal acceleration of the membrane to reproduce the desired impulse. Once the transducer reaches the end of the impulse the AOI circuitry provides a break in order to act against an overshooting of the transducer. The AOI circuitry is almost capable of reproducing a square wave and therefore increases accuracy by marring the transducer and the amplifier in to a perfect couple. A nice side effect of the AOI system is that the membranes of a PSI speaker do not produce parasite sounds when other speaker systems in the room are in use. When air pressure is produced by other sources than the PSI speakers the AOI will detect this and tighten the damping of its transducers in order not to produce parasite sounds not originating by the speaker system in use.

In today's times where much more importance is given to the low end reproduction of sounds especially when using sub woofer technology in surround sound systems the importance of a monitoring system that has an accurate and not a flattering reproduction becomes essential. The result of the AOI featured PSI Audio speaker range is a speaker family with a highly accurate impulse behavior with a minimum of transducer coloration.