



# Sustained Plateau Bias™

## Core Technology Guide

The most linear, lowest distortion class of operation for an audio power amplifier is Class A bias, in which the full current needed for full power is continuously carried by the amplifier, whether it is needed or not. This makes Class A the least efficient class of operation, delivering 10% or less of the amplifier's total power draw as usable power to the loudspeaker. Class A bias is by far the most desirable for performance, but for a large amplifier to continuously dissipate thousands of Watts of heat in order to occasionally deliver several hundred Watts to the loudspeaker creates economic and environmental problems, not to mention reliability problems. The size of the cooling system (heat sinks, fans, etc.) for a high-power Class A amplifier adds tremendous cost. Most high fidelity amplifiers employ Class AB bias, in which the efficiency of the amplifier approaches 50%, in order to reduce the amplifier's cost and size. The penalty for Class AB bias is reduced sound quality.

C.E.O. Dan D'Agostino has directed the Krell® engineering effort to examine ways to achieve both the high efficiency and the enormous sound quality benefits of Class A biasing. Their breakthrough solution is called **Sustained Plateau Bias™**, which debuted in the classic Krell® Audio Standard amplifier. In this remarkable solution, the amplifier bias point tracks the musical signal so that the amplifier always remains in Class A bias for the signal level being amplified. To avoid sonic problems from too-rapid bias changes, the bias level is set in several discrete plateaus. When the musical signal requires a step to a bias plateau, the bias remains at that plateau long enough to be sure that the sound quality won't be affected, similar to the way in which the sustain pedal of a piano allows a note full expression.

Further refinement by Krell® has resulted in **Sustained Plateau Bias II™**. This innovative implementation employs a microprocessor to not only monitor the signal level but also continuously monitor the loudspeaker impedance. This means that the power requirements of both the signal and the load are accounted for. The result is Class A operation, which yields the lowest possible distortion under all conditions. Sustained Plateau Bias II™ delivers completely transparent sound with incredible detail and resolution, sound that imparts the full

## **Core Technology Guide, continued**

sense of the acoustic environment of the original performance. No other amplifier design can deliver this level of sonic purity with such an immense range of power output capability. The Sustained Plateau Bias™ solution sets a new standard for Class A bias operation—the authentic sound of music from Krell®.