

Figure 8.20. Second version zero feedback amplifier without output stage corrector. Amplifier drives 20W in 8 Ω resistive load.

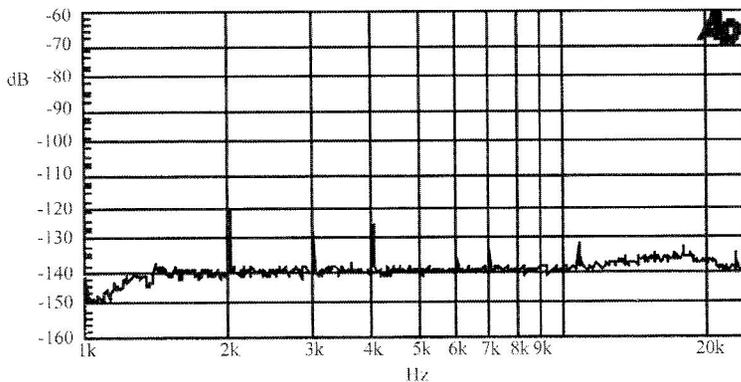


Figure 8.21. Zero feedback amplifier with output stage error corrector. Amplifier drives 20W in 8 Ω resistive load.

The improvement in the drift performance was radical compared to earlier zero-feedback designs and operation without a DC-servo would be possible; the drift during the warm-up period was just about 20mV. After warm-up, the output DC-level remains stable within a few millivolts even without an enclosure. To further limit DC drift especially during warm-up, an automatic DC adjustment circuit was added (A DC-servo is a low frequency global feedback loop and even if its effect is supposed to be minimal at audio frequencies it is still a potential source of errors). This was implemented using a processor and a digital potentiometer having a 2 mV threshold. The DC-value stabilizes within the first two minutes after the amplifier turn-on; after this the DC-compensation remains constant. The DC measurement is also used in the speaker protection system.

The PSRR of the input and the VA-stages are based on symmetry and current sources in the bias circuits, and the selected topology is excellent in this regard compared to many other amplifier topologies. It is still difficult to achieve the high PSRR commonly found in NFB amplifiers though. A