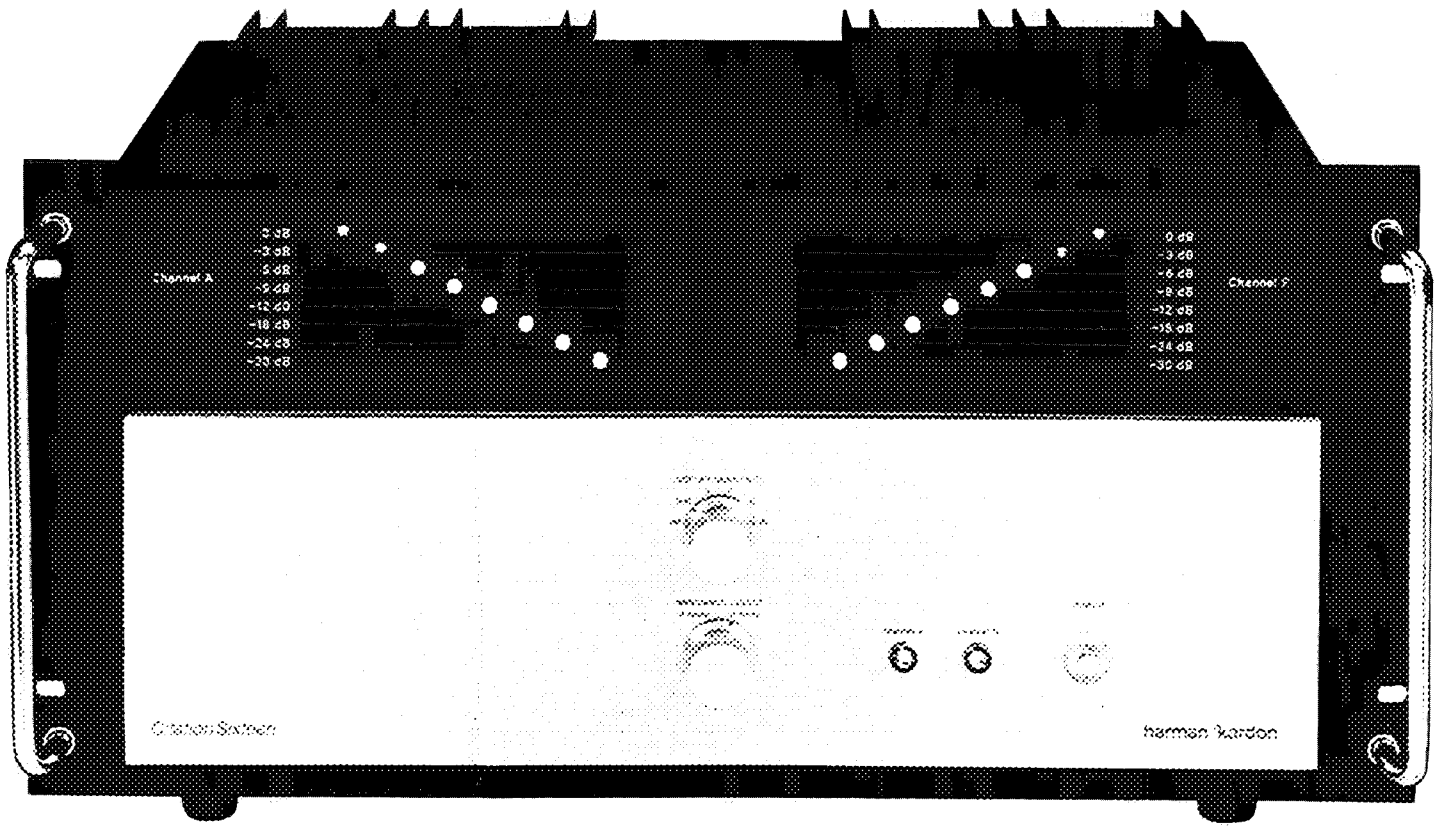
harman/kardon

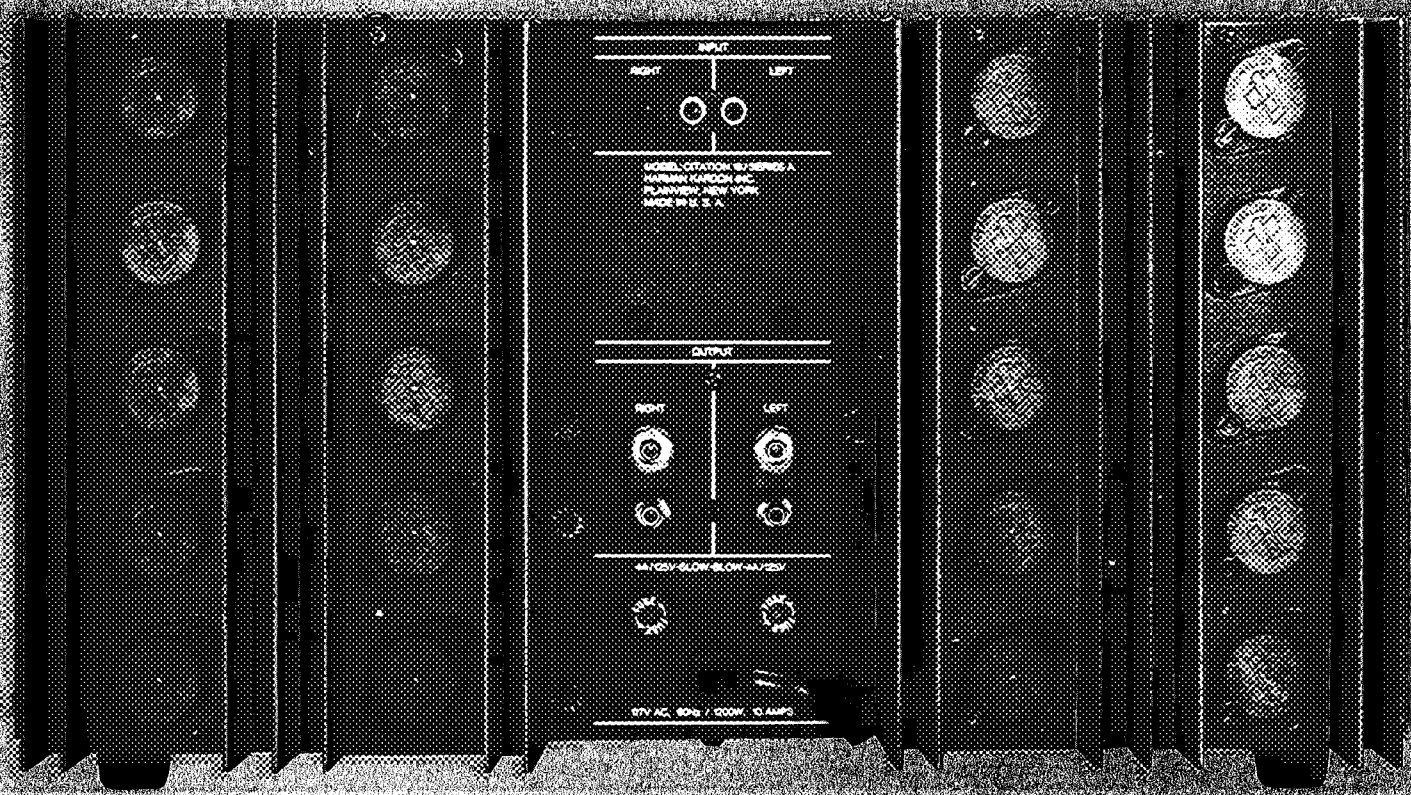
Citation 16 (series A)

Professional Power Amplifier

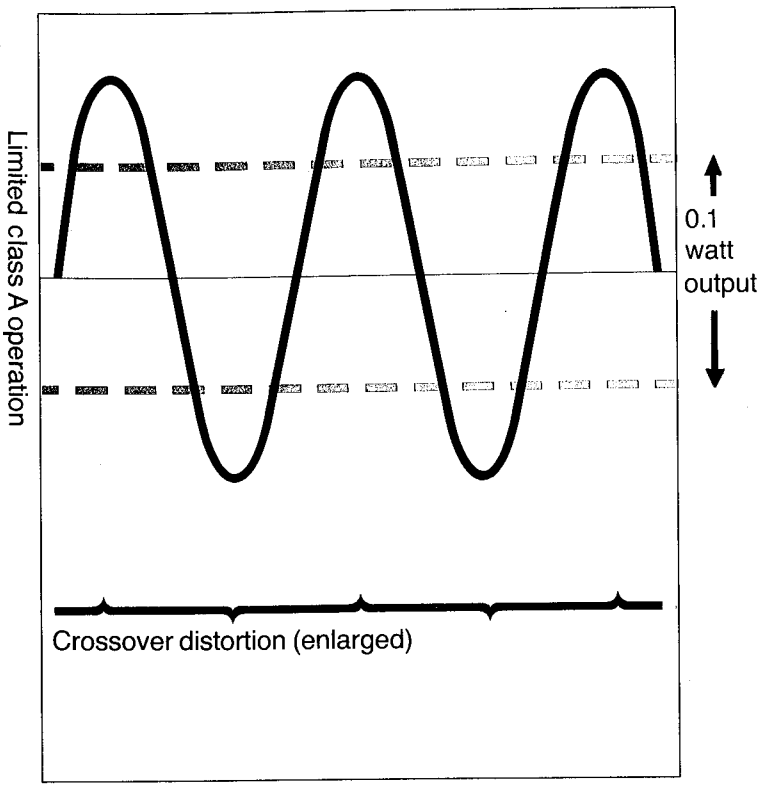


Harman Kardon has improved an already superb power amplifier. The Citation 16 has been hailed as rock-stable and capable of handling any speaker load with ease. Why then a new Citation 16?

New understandings. About the nature of distortion. About the sonic differences that exist among amplifiers despite similar specifications. The new Citation 16 sounds better. More transparent. There is an increased openness in the reproduction of high frequencies that complements the tightly controlled solidity of the bass response. Stereo imaging is spacious and reveals a wealth of inner detail. The Citation 16 (series A) will realize the full potential of any loudspeaker. It is a power amplifier made for the most discriminating listener.



Citation 16

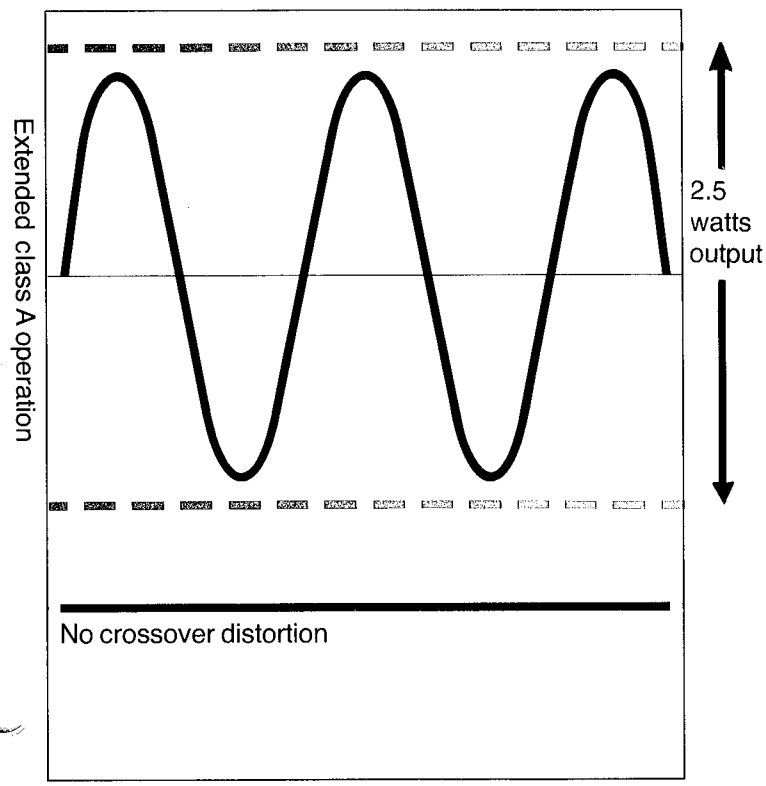


Crossover Distortion

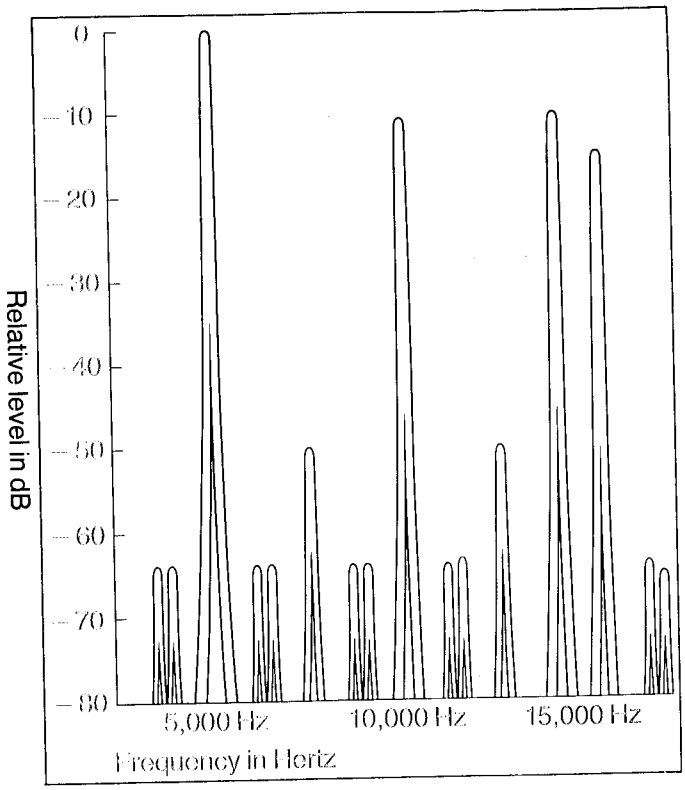
Most transistor power amplifiers are designed for class AB operation. They operate in class A until approximately 0.1 watt output and in class B at higher power levels. Class B is an efficient mode of operation, but a form of distortion called crossover or "notch" distortion occurs at the point where class A operation ends and class B commences. Crossover distortion has been identified as a prime cause of harshness in the sound of transistor amplifiers.

In the Citation 16 (series A) the transition between class A and class B operation takes place at 2.5 watts—17dB below full output. Extending class A operation greatly reduces audible crossover distortion.

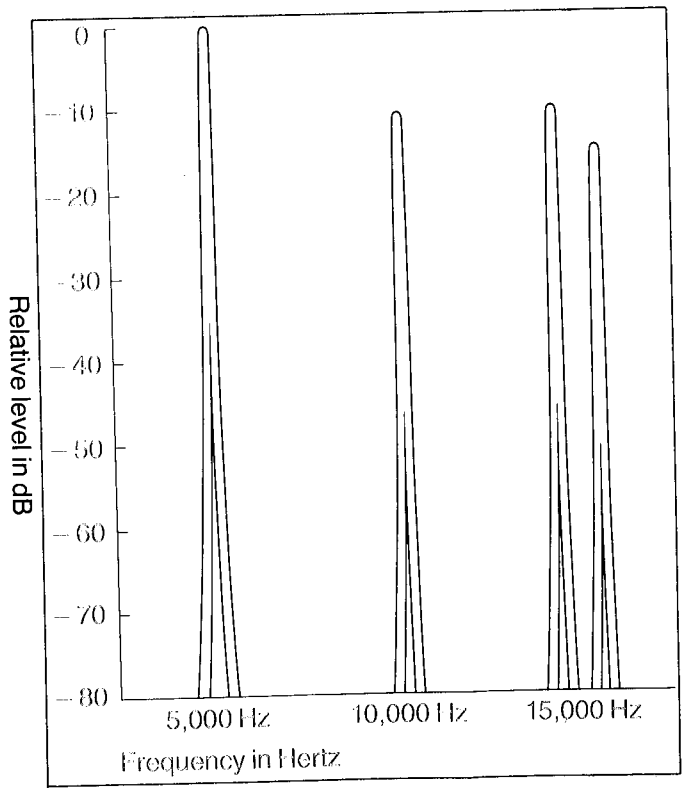
Citation 16 (series A)



Citation 16
Under demanding full output test conditions, Citation 16 TIM components are approximately −50dB below full output.



Citation 16 (series A)
Under the same test conditions, Citation 16 (series A) TIM components are better than −80dB below full output.



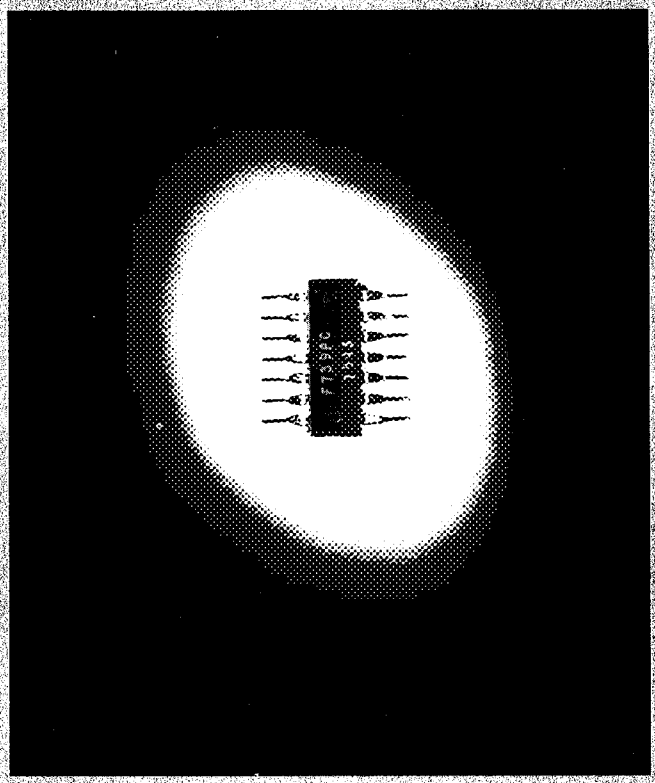
Transient Intermodulation Distortion

One of the major developments in high fidelity design was the discovery of the beneficial effects of applying negative feedback to amplifier circuits. The result is a self-regulating, distortion reducing process. Unfortunately, if the amount of feedback employed is too great, the input stage becomes saturated and produces transient intermodulation distortion (TIM). TIM is audible as a harshness similar to that produced by crossover distortion.

The Citation 16 reduced TIM to very low levels. The Citation 16 (series A) diminishes it still further. Feedback is reduced and is set at a level which achieves extraordinarily low distortion simultaneously avoiding input stage saturation. TIM is dramatically reduced.

Integrated Circuits or Discrete Components

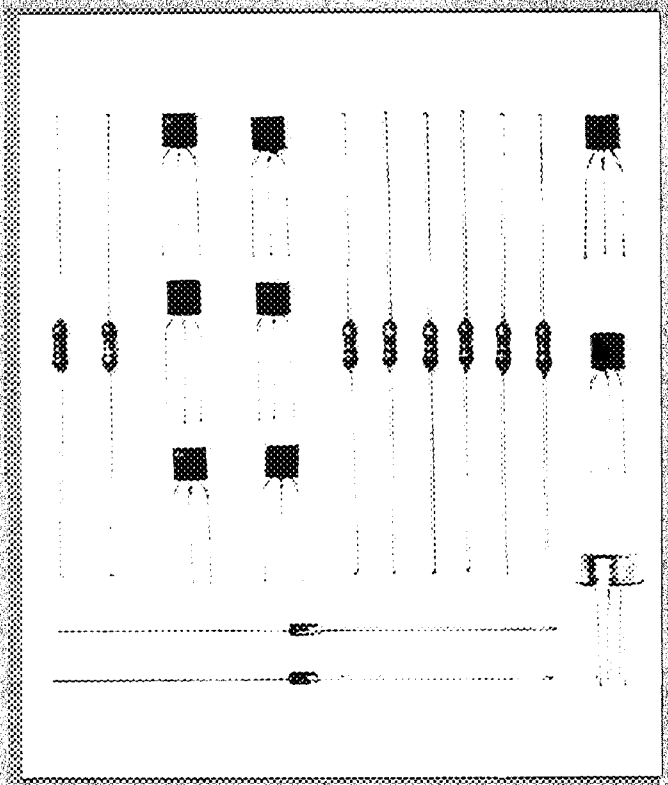
Citation 16 Integrated Circuit



Integrated circuits are very convenient and generally perform quite well. They are not, however, ideally suited for all applications. Because of the close proximity of the circuit elements, they cannot provide the same degree of electrical and thermal isolation as their discrete counterparts.

The Citation 16 used an integrated circuit in each channel of its input stage. This IC has been replaced in the 16 (series A) by high quality discrete components which have superior electrical and thermal properties and offer distinct sonic advantages. The use of these discrete components, carefully laid out on instrument grade circuit-boards, precludes such problems as parasitic capacitance and allows transistors to dissipate heat freely without affecting other components. The audible benefits are increased transparency and a greater sense of inner detail.

Citation 16 (series A) discrete components



Additional Features

The Citation 16 (series A) also employs current-mirror circuit design and additional driver transistor heat-sinking. Bias maintenance has been improved through use of Darlington transistors which have better tracking abilities than the single transistors used in the Citation 16.

The Citation 16 (series A) possesses the qualities that have always been associated with Citation components: twin-power, wide bandwidth, unexcelled square wave response, phase linearity and heavy-duty construction. It adds extended class A operation, low feedback design and discrete components throughout. The result is a refined, high power amplifier that listens as well as it measures.