

How to Judge A Hi-Fi System

Part I

Hi-fi, even the best hi-fi, is not a substitute for real music. It is however, possible for the very best hi-fi equipment to bring music and the enjoyment of music, into your home.

The primary characteristics of music could be stated to be:

1. The beat
2. The tune or melody
3. The merit of the performance
4. The message of the composer

It would be foolish to pretend that many hi-fi systems get past the first stage.

A note from a musical instrument is never made up of a single frequency of specific amplitude. A note is made up of many discrete frequencies, each with discrete amplitude. The resultant effect of the summation of these frequencies and amplitudes is a note of a perceived frequency with a perceived amplitude.

If any of the frequencies constituting the individual components of a note are shifted, or if any of the amplitudes of its frequency components are altered, then the net result will be a shift in the resultant perceived pitch. Let us take the example of a CD-source system. If the CD player incorrectly reads or misinterprets the digital coding on the CD, then frequencies and amplitudes will be altered. The processor component of an amplifier (the pre-amplifier) can misinterpret or even add to the signal which is passed from the CD, once again leading to altered frequencies and amplitudes. The same is the case for power amplifiers and speakers.

This means that a piece of hi-fi equipment can actually change the pitch of a note it is attempting to reproduce. And from this, it can then be said that the better the hi-fi equipment, the more pitch-accurate the sound produced will be.

As few people have perfect pitch, this may not seem terribly important in itself, because the resultant pitch of every note will be changed. However, the actual pitch relationships will also be distorted (generally towards a mean associated with the particular shortcomings of the equipment employed).

Relative pitch changes are very easily perceived but, if you try to reproduce, even silently to yourself, the *actual* pitch of the noise coming from a hi-fi system, it will often prove extremely difficult. Although the main thread of the melody could possibly be followed, secondary instruments and vocals will normally prove to be impossible to follow.

If you perform this test with a hi-fi system, you will find that it is, in fact, impossible to sing along with most systems. This means that the system has, at least for you, no musical merit whatsoever. In short, it makes a noise.

Unless you can sing along with a system, you are incapable of responding to it and it cannot bring the benefits of music into your home.

There is nothing to understand about a hi-fi system. Statistics about what is “under the hood” of a hi-fi tells you nothing about how well that system plays music. Music is an international language of emotion and feeling.

If you acquire a system that enables you to sing along with it, you will be able to emotionally respond to the system. Even if it is not good enough for you to evaluate the merit of the performance of the artist, it will prove to be sufficiently good to provide you with many hours of happiness and enjoyment.

If, however, you purchase a system which does not fulfil this criterion, after a few weeks, even without your being aware of it, what is known as “listening fatigue” sets in. In effect, this means that your system will never be utilised, except possibly as background noise to disturb conversation when friends call.

Such a system will not broaden your musical tastes and horizons, nor, most lamentably of all, will it encourage you to go and listen to live music.

The notion of singing along with a system does strike most people as preposterously naive and simplistic and not sufficiently technical for the modern man as a method of product evaluation. People erroneously believe that they should listen for distortion, immediacy, imaging, soundstage and all other garbage terminology of the hi-fi industry. The purpose of language is to convey meaning and very few of the terms used in hi-fi convey any meaning whatsoever.

When you listen to hi-fi, or live music reproduced through a PA system, it is not normally possible to listen in the same natural way as live, non-amplified music. For being, that no matter how hard you try, it is difficult to make the same sound - to reproduce the same set of pitch relationships in your head. T

There are many, many reasons for this; however, in simple terms, there is nothing that a human being would recognise as a tune and, consequently, nothing for a human being to respond to in the normal way.

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Part II

Most people in the audio business object violently to the following facts:-

- that human beings respond to real music in a natural way,
- that real music has any validity for people,
- that the tune has any significance,
- and most violently of all, they object to the notion that a hi-fi system or any component in it, (especially a digital recording or playback system) could change the tune originally recorded.

However, what we perceive as the tune is a function of frequency and amplitude. We perceive the net effect of both these parameters. *All* the components in a hi-fi system have the capacity to non-linearly alter the values of all frequencies and all amplitudes and, consequently, to alter the net perceived pitch, to compress or distort the pitch relationships, and so the resultant signal. This appears not to have been widely understood.

Consequently, what we actually hear from a hi-fi can be different to our musical expectations; simply by the inadequacy of the equipment employed at some point in the record or playback chain.

Music was evolved by people for people. Not by machines for people, or people for machines. Just like the song of the birds was evolved by, say, nightingales for other nightingales. Humans are born with substantially inherited musical linguistic capability.

Music, like the song of the bird, is built upon several things: the beat or duration of the sounds and the change in perceived frequency of the components, in other words, the pitch. The change in pitch of each component of a call, or, if you like, each note, has to be significant to other creatures of the same species. It has to be readily perceptible, in other words, the pitch increment has to be of a consistent and readily perceived size.

A very similar situation pertains to the way in which human beings respond to music. If the size of pitch increments in a piece of music are not readily discernible and largely predictable, then people will not respond coherently and predictably to the sound. There will come a point after which by no definition could it be called music - it would merely constitute a noise. The criteria for assessing the relative merits of two noises will necessarily be extremely wide, vague and uncertain and, indeed, this is illustrated by a brief study of the contents of any hi-fi magazine.

The beauty of music is that it constitutes an international language of feeling and emotion. It is felt, rather than understood. When we listen to a piece of Beethoven, we can directly experience the feelings that Beethoven wished to share with us. Music is a unique and singular cultural dimension. Reproducing it in the home is a most worthwhile objective. The hi-fi industry is founded upon

worthwhile and meaningful goals. It should be worthwhile to design, manufacture, sell, purchase and use hi-fi equipment and recording equipment. The object however, is not to enjoy the equipment, but to get pleasure from the recorded material. This, however presupposes the recorded material reproduces with a high degree of fidelity the original performance, which in itself is assumed to have inherent merit.