Subject: Re: Is the difference in sound quality all in our head?
Posted by Wayne Parham on Wed, 13 Feb 2019 17:10:12 GMT
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That's all very true, Rusty.  Glad you posted it.

The audibility of distortions and anomalies could be and should be viewed as a weighted set, with the most audible things factoring in more than the least audible things.

It's relatively easy to measure THD+noise, which is why it has been used as a quality test for so long.  But if a system generated 10% second-harmonics and no noise or any other anomalies, the system would sound much better than a system that had 2% noise or high/odd harmonics.  And like you said, intermodulation distortion is more audible than low harmonics too, especially even ones.

This is a set of anomalies in order of audibility:

1. High-level noise (completely unrelated to content)
2. Flutter, dropouts, etc. (usually caused by malfunction)
3. Dissonant signals (similar to noise, but may be related to content, just not by harmonics)
4. Large peaks in amplitude response
5. Intermodulation distortion (intermodulation creates dissonant signals)
6. High-harmonics distortion
7. Odd-harmonics (the higher, the worse it is)
8. Large holes in amplitude response (like missing treble)
9. Even-harmonics (again, higher is worse)
10. Low-level hum (usually related to power, ground or shielding)
11. Low-level white or pink noise (hiss)

Of course, if you have an extreme problem in one of the low-weighted areas, it may be more audible than a small problem in one of the higher-weighted anomalies.  This list describes an approximate order of precedence if the content of each of the problem areas are approximately equal.