

Abstract of "The 96 kHz Phenomenon" by Francis Rumsey

This article takes a look at the "recent" (I believe this article is a year or two old) surge of demand for audio products with a 96kHz sampling rate. Rumsey cites DVD's acceptance of 96kHz audio sampling option as a sure sign of the impending flood of high sampling rate products on the audio market. To educated audiophiles, the need for 96kHz sampling may seem a little opaque considering humanity's hearing limit of 20kHz, but Rumsey quickly points out some advantages to higher sampling rates above and beyond a mere increase in high frequency response. The simplest advantage to 96kHz is basically more range in which to attenuate the incoming signal before filtering; the spectrum-coloring brick wall anti-aliasing circuits that are required at sampling rates even as high as 48kHz would no longer be necessary. Secondly, similar to the benefits of oversampling at the DAC end, an increased sampling rate on the ADC side would spread the quantizing noise over more of the inaudible bandwidth since this inaudible bandwidth now compromises more of the sampled frequency range. Finally, a doubling of the sampling rate also doubles the amount of redundant information in the sample stream; as redundancy is increased, so is digital audio less prone to debilitating errors.

Despite these apparent advantages to the 96kHz sampling rate, higher frequency sampling is not without its disadvantages. The main roadblock against the widespread acceptance of 96kHz as a sampling standard is that it has yet to be accepted by the AES as a standard sampling rate. A consumer of a 96kHz based audio product has yet to know whether his device will therefore be digitally compatible with pre-existing 48 kHz digital audio products or future digital machines with a theoretically unknown sampling rate. Another drawback to a higher sampling rate is the basic doubling of information storage and transmission requirements. 96kHz audio "gobbles up tape and disc space twice as fast as [48 kHz] audio." Finally, as with any increase in precision, data sampled and transmitted at a super high speed will necessarily have to be more carefully handled through cabling and interfaces. Many of the disadvantages to the 96kHz sampling rate, however, seem to be solvable within the near future. Since memory space and processor speeds are continuously being improved by the computer industry, 96kHz only needs to be adopted by the AES as a standard sampling option for these disadvantages to be negated. Considering the buzz that Francis Rumsey attributes to 96kHz, therefore, one can only surmise that its acceptance by the AES, and eventually the audio community in general, will be not too far in the future.