Subject: what is "resolution" in sound?
Posted by sanspolanco on Sun, 19 Jun 2005 16:52:00 GMT
View Forum Message <> Reply to Message

i just read some articles (all over my head) about the pro's and con's of digital and analog. a couple articles mentioned that the resolution of LPs is better than CDs but creates coloration. what is resolution?

Subject: Re: what is "resolution" in sound?
Posted by Wayne Parham on Sun, 19 Jun 2005 17:27:59 GMT
View Forum Message <> Reply to Message

Resolution is granularity. If you look at a picture on your computer screen, it is made from a series of dots, maybe 1024 across and 768 down. That's higher resolution than a screen of 640 by 480. There's also a resolution of shades of color. A high resolution image has 16 or 24 million colors, whereas a low resolution image may have only 256.Same thing in audio. If you have a sound recorded digitally, it might be sampled 44,100 or 96,000 times per second or it might only be sampled 11,000 times a second. Each sample may have 65,536 levels of amplitude (16 bit) or it may have only 256 (8 bit). Or it might be a 24 bit sample, having 16 million units of dynamic resolution.Now look at analog. In one sense, it has infinite resolution since there is no sample, no smallest unit of information. But in reality, there is a smallest unit of resolution, which is determined by the media and the machinery.Using pictures again, think of a camera loaded with 400 ASA film and another with 100 ASA film. The slow speed prints look crystal clear, like there are no dots but the high speed film prints show a little bit of grain. That's because the film has grain, and the high speed stuff is larger. It's still higher resolution than most digital images, but the point is that even though it is an analog media, there is a resolution limit too, in this case, imposed by the media.All analog formats have limits imposed by the equipment or by the media. This sets the resolution, like the bit density does for a digital system. The higher limit is set by the maximum amplitude and frequency the system can pass. The lower limit is set by the noise floor and by the lower frequency the system can pass. Analog formats tend to hit their limits smoothly, and the edge blurs. Digital formats tend to hit like a wall, because they have a well-defined limit.

Subject: Re: what is "resolution" in sound?
Posted by sanspolanco on Sun, 19 Jun 2005 18:28:03 GMT
View Forum Message <> Reply to Message

thanks for the helpful explanation. i am still alittle unclear about somehing. what does bad resolution sound like? is it like listening to 28kpbs? or does it have to do with "dynamics" (variation of volume)? and if it has to do with dynamics, does that mean that cds played at a higher volume do not sound as good as records?-sjp

Subject: Re: what is "resolution" in sound?
Posted by Wayne Parham on Mon, 20 Jun 2005 06:50:06 GMT
View Forum Message <> Reply to Message

It depends on what is lacking in resolution. If the system is lacking in number of samples, it will lack high frequency content. If each individual sample is lacking in amplitude resolution it will sound distorted and harsh.

Subject: Listen to a stereo...
Posted by Mr Vinyl on Tue, 21 Jun 2005 19:10:01 GMT
View Forum Message <> Reply to Message

Listen to a stereo with your eyes closed. Can you tell that it's not an orchestra in front of you? If so that's what bad resolution sounds like. If stereo's were perfect and recording techniques were perfect than you would not be able to tell the difference. Of course no stereo that I have ever heard comes close. Some however come closer than others. They have a higher resolution.