

Digital Signals Goodbye to Analog

Contributed by Kevin Cantera
Wednesday, 27 February 2008

As this first decade of the 21st Century draws to a close, so also does the age of analog. When it comes to communications, analog has served humanity long and well, but the old technology is being phased out by governments and manufacturers alike, and within ten years, the old analog systems will likely be a technological footnote to history. {mosbotwordcount}

As this first decade of the 21st Century draws to a close, so also does the age of analog. When it comes to communications, analog has served humanity long and well, but the old technology is being phased out by governments and manufacturers alike, and within ten years, the old analog systems will likely be a technological footnote to history. Put simply, analog equipment cannot compete with the capacity of digital and, as a result of simple economics, it is destined to dwindle away. Of course, analog systems made sense when first created, for analog signals are able to duplicate virtually any natural phenomena, such as sound or light, which are analog inherently because they are infinitely variable.

{bot_wrgoogle}With analog systems of communications, the biggest problem has always been noise. While analog offers the infinite variability that replicates the natural state of sound or light, converting those phenomena into an electrical signal and then back again into a sound or an image creates "noise." The term is used because it can literally produce noise in an audio system – the hiss or rumble that is heard in poor quality recordings. Noise also shows itself in the grain or "snow" that can trouble a TV signal. Noise affects an electronic signal at every stage of the communications process, and its effects add up.

Although a digital signal cannot directly represent an analog quantity, everybody know that a digital device like and Mp3 player offers excellent quality duplication of sound, which is, in fact, an analog phenomenon. The process by which a digital signal duplicates an analog quantity is called encoding, or just simply coding. Encoding allows the digital representation of analog quantities – an area of infinite variability – by using a binary system that creates an on-off switch for all those variables (theoretically). This use of digital signals gives a major improvement in noise reduction.

Noise affects the inherent value of a signal, whether it is digital or analog, but on an analog signal the noise has an impact on the value of that signal, because increased voltage over an analog signal creates distortion. When an analog signal is recorded, it is inevitable that noise is recorded along with it. If it is then re-recorded, the original noise is indistinguishable from the original signal, and becomes, effectively, part of the new signal. At each recording stage, extra noise will be introduced into the system and multiple copying of an analog signal ultimately results in an unacceptable loss of quality, called generation loss.

When a digital signal is recorded, it too will include noise picked up within the system. However, a digital signal is clearly identifiable, despite any noise the signal picks up. At the root of the digital advantage is the fact that the signals in a digital system do not have to be accurate. A voltage only needs to be readable as a one or a zero to be processed. Thus, digital communications signals offer possibilities which have no equivalent in analog systems.

Author Kevin Cantera, a free lance writer in Utah, writes about the revolution in technology from using analog to digital signals that has improved upon quality, noise reduction and much more. Best example in digital communication is video phone. For more information on free cell phone video, mobile video sharing, phone video sharing, please visit www.vringo.com.