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Does Bluetooth Wireless Audio Reduce Sound Quality?

Reasons why Bluetooth can reduce audio quality

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Although Bluetooth technology

offers a common way to enjoy wireless audio through speakers and headphones, some people object to Bluetooth because, from an audio fidelity standpoint, you're better off choosing one of the Wi-Fi-based wireless technologies such as AirPlay, DLNA, Play-Fi, or Sonos. While that understanding is generally correct, there's more to using Bluetooth than meets the eye.

A Bit About Bluetooth

Bluetooth was not originally created for audio entertainment, but to connect phone headsets and speakerphones. It was also designed with a very narrow bandwidth, which forces it to apply data compression to an audio signal. While this design may be perfectly fine for phone conversations, it's not ideal for music

reproduction. Not only that, but the Bluetooth could be applying this compression on top of data compression that might already exist, such as from digital audio files or sources streamed through the Internet. But one key thing to remember is that a Bluetooth system *doesn't have to apply* this additional compression.

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Here's why: All Bluetooth devices must support Low Complexity Subband Coding. However, Bluetooth devices may also support optional codecs, which can be found in the Bluetooth Advanced Audio Distribution Profile specification. The optional codecs listed are: MPEG 1 &

2 Audio, MPEG 3 & 4, ATRAC, and aptX. ATRAC is a codec that was used primarily in Sony products, most notably in the MiniDisc digital recording format.

> **Note:** The familiar MP3 format is actually MPEG-1 Layer 3, so MP3 is covered under the spec as an optional codec.

Optional Codecs

The official Bluetooth standard, at section 4.2.2, states: "The device may also support Optional codecs to maximize its usability. When both SRC and SNK support the same Optional codec, this codec may be used instead of Mandatory codec."

In this document, SRC refers to the source device, and SNK refers to the sink (or destination) device. So the