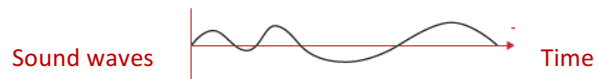


HOW DOES MODULATION WORK?

The general principle of modulation, which allows sound to be transported, consists in converting the sound wave into a radiofrequency wave first, then adding it to another radiofrequency wave called the carrier. The latter has a constant frequency (> 100 kHz) and amplitude, unlike the sound wave, which varies constantly with the words and sounds.



The oscillation of the voice, whose frequency is considerably lower (<20 kHz) than that of the carrier, is added to this, which produces a new wave that can be transported through the air and containing the voice. Adding one wave to another can be done in different ways, hence the names AM and FM (AM: amplitude modulation, FM: frequency modulation). The figure below shows an AM type modulation, which is historically the first to be used.

This modulation of the voice is done at the transmitter level. The receiver should use demodulation to separate the audio signal from its carrier.

In the case of AM modulation presented here, the signal sent may be modified by other radio frequency sources. When this happens, the voice carried can be altered, degraded, to the point of no longer being audible. This interference adds to another problem: the sound quality is not ideal, especially for music. This is why as technological advances, many other methods have developed and become more complex, even allowing other types of information to be transported such as text, images, or even of the video.

