CLAIMS

[Claim 1] A device for receiving acoustic waves, comprising:

- an acoustic antenna able to function as a condenser microphone distributed along a line (L) of the acoustic antenna comprising a conductor (A) and a dielectric (D), the line (L) being a transmission line or being configured to function as a transmission line when the dielectric makes direct physical contact with another conductor,

- an exciter (EX) configured to apply, in a receiving step, an input voltage to a first longitudinal end (E1) of the line (L) so as to generate an input electromagnetic wave that moves toward a second longitudinal end (E2) of the line (L) and so as to generate an output electromagnetic wave that moves in the opposite direction to the input electromagnetic wave, the input voltage simultaneously comprising a set of sinusoidal voltages comprising a fundamental sinusoidal voltage and a set of harmonics of the fundamental sinusoidal voltage, the frequency of the fundamental sinusoidal voltage being defined so that stationary waves are established in the line (L) such that the output electromagnetic wave comprises directional acoustic-antenna channels.

[Claim 2] The device for receiving acoustic waves as claimed in the preceding claim, comprising a receiver (R) allowing the directional acoustic-antenna channels to be separated and a set of demodulators (DMi) allowing the directional antenna channels to be amplitude demodulated.

[Claim 3] The device for receiving acoustic waves as claimed in either of the preceding claims, wherein the line (L) is a transmission line.

[Claim 4] The device for receiving acoustic waves as claimed in any of the preceding claims, wherein the acoustic antenna is the line (L), the line (L) being able to function as a condenser microphone over the whole of its length.

[Claim 5] The receiving device as claimed in any one of the preceding claims, wherein the acoustic antenna comprises the line and elementary condenser microphones that are spaced apart along the line and electrically connected to the line so that the

antenna is able to function as a condenser microphone in longitudinal segments that are spaced apart from one another along the line.

[Claim 6] The device for receiving acoustic waves as claimed in any of the preceding claims, comprising a duplexer (DU) configured to separate the output electromagnetic wave from the input electromagnetic wave.

[Claim 7] A method for detecting acoustic waves using a device for receiving acoustic waves as claimed in any one of the preceding claims, the detecting method comprising a receiving phase in which the exciter (EX) applies, to the first longitudinal end (E1) of the transmission line (L), the input voltage.

[Claim 8] A method for forming directional acoustic channels comprising the method as claimed in claim 7, the method further comprising the following steps: separating the output electromagnetic wave from the input electromagnetic wave, separating the directional acoustic-antenna channels and amplitude demodulating the directional channels.