



Detection with Ultrasound

What are ultrasonic waves?

Ultrasonic waves have very small wave distances (frequency). Thus the sound is above the audible range of the human ear (above approx. 20 kHz).

Ultrasonic measuring instruments for leakage detection in buildings work with a transmitter and a receiver which can transmit or receive these high-frequency ultrasonic waves.

Depending on the position of the transmitter, leaks can be located from the inside or outside.



Photo: SONOTEC Ultraschallsensorik Halle GmbH

Converting ultrasonic waves into audible sound

High-frequency ultrasonic waves are often converted into audible sound waves by the receiver (heterodyne method). If there is a leakage, the user hears this via headphones.



Photos: SONOTEC Ultraschallsensorik Halle GmbH with the product Sonaphone T

Visualization of ultrasonic waves

The company SONOTEC now also offers an imaging method that enables the visual representation of ultrasonic signals.



The Ultragraphyx software converts the ultrasound signals and displays the leaks in an image.



Photos: SONOTEC Ultraschallsensorik Halle GmbH

Limits of ultrasonic leakage detection and possible solutions



The detection of leaks at windows and doors on the ground floor can be carried out relatively quickly.

Frequent problem:

Transmitter and receiver must also be at the same height at higher points.

Solution:

There are now solutions for this problem, such as the optionally available telescopic rod with suction cup from FCSM GmbH.

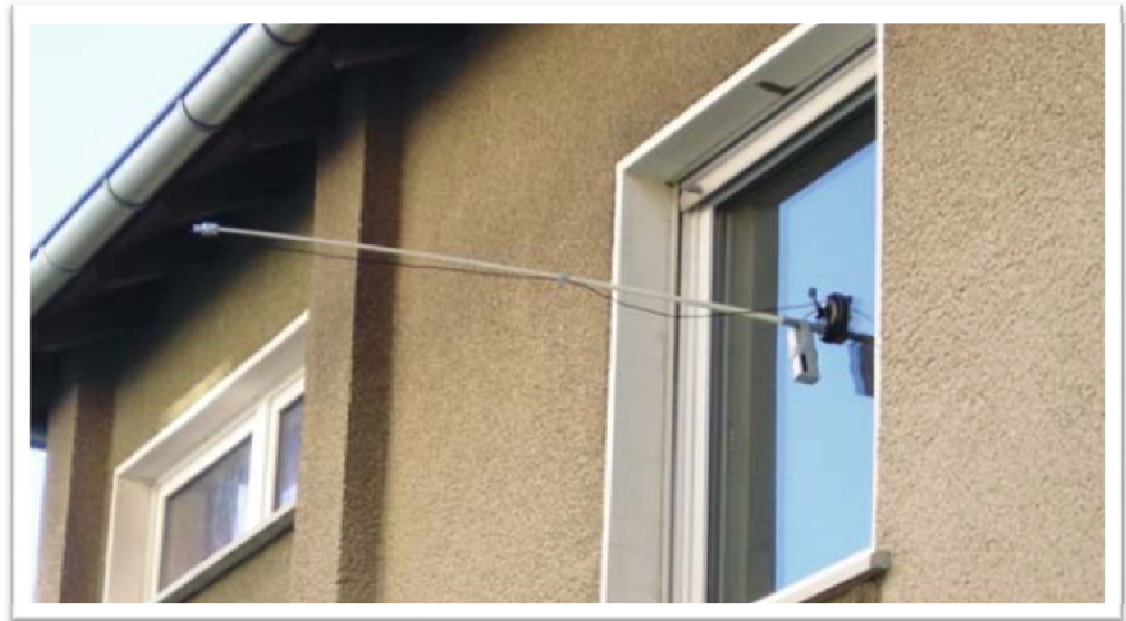


Photo: Trauernicht (www.luftdicht.de) – UL1 from FCSM GmbH

Advantages and disadvantages of ultrasonic leakage detection

Leakage detection by means of ultrasound – like any other method of leakage detection – has advantages and disadvantages.

In the area of doors, windows or complete glass facades, the ultrasonic method can be used very well and produces satisfactory results. Here the ultrasound method can be an effective alternative.

However, if the leakages are not linear, e.g. in the area of walls, the ultrasound method is very often unable to detect them.



Photo: SONOTEC Ultraschallsensorik Halle GmbH

Literature and Links

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