

Abstract

Explanatory note: 60 p., 18 figures, 23 tables, 21 source.

Actuality of theme

Today, wireless data technology has become an integral part of our lives. They are widely used among consumers of both conventional and professional equipment. Non-destructive testing is no exception.

If we consider the existing devices and systems of non-destructive testing in which wireless data transmission is used, we will see that in the vast majority of them such technologies are used as auxiliary, and are not used for transmission of raw data about the object of control.

In this work, wireless technologies are used not just to transmit reports on the state of the object of control, but with their help organized "communication" of the sensor with the primary converter and the receiving unit and

information processing. In operation, such a unit is a smartphone. The smartphone as a complex device today has high computing power, a full set of the most common wireless technologies, as well as a flexible software shell. It is these advantages of this type of device allows you to use them in non-destructive testing. The essence of this work is to improve, namely the introduction of menus in English and automatic selection of maxima when determining the distance between the reference and echo pulses, the development of a flaw detector with a wireless channel for transmitting data on the status of the object to the smartphone. Where this data will be processed and displayed on the main display to decide whether there are defects in the inspected object.

The purpose and objectives of the study

The purpose of the study is to make it possible to use the program in more countries, to increase the functions.

Expansion of program functions, development of menus in English and automatic selection of maxima when determining the distance between the reference and echo pulses.

Object of study

The object of research is a flaw detector with remote data processing.

Subject of study

The subject of research is methods and means of transmitting and receiving a signal from a sensor using wireless communication channels and subsequent reconstruction of the signal using a smartphone.

Ultrasound flaw detector, flaw detector with bluetooth connection, smartphone, wireless data transmission, non-destructive testing, ultrasound, wireless networks.