Reinforced concrete is currently the most widely used construction material. The wide field of applications forces the usage of the advanced techniques for quality control and tests of these structures. Most frequently it is required, that such tests should be possible to perform after the reinforced concrete hardening, during its usage and without damaging the structure. Therefore, various non-destructive testing techniques are here the natural choice.

There are several aspects of possible non-destructive evaluation of reinforced concrete structures. One of them is the detection and assessment of the rebars. The authors propose here selected active thermography techniques. In case of the active thermography, an external energy source has to be used to induce the thermal response of the tested specimen. For concrete structures heating source based on the radiation phenomena (like halogen lamps, flash lamps, infrared radiators and similar) may be not effective due to, usually, large size of the examined structures. Therefore, authors propose two different heating techniques: a microwave heating and an induction heating. The microwave heating has volumetric character and its ratio depends not only on thermal properties of the material, but also on electrical properties. In case of metals (rebars made of a steel) microwave heating is not effective, thus the colder spots observed on the specimens’ surface will indicate presence of the rebars. On the contrary, the induction heating, generates the heat by eddy currents only in the metal objects. The hot spots will indicate the rebars’ positions.

In this article authors will present selected experimental results, which will allow to evaluate and compare the proposed two techniques of heating suitability of each one to assess the reinforced concrete by using the active thermography will be discussed.