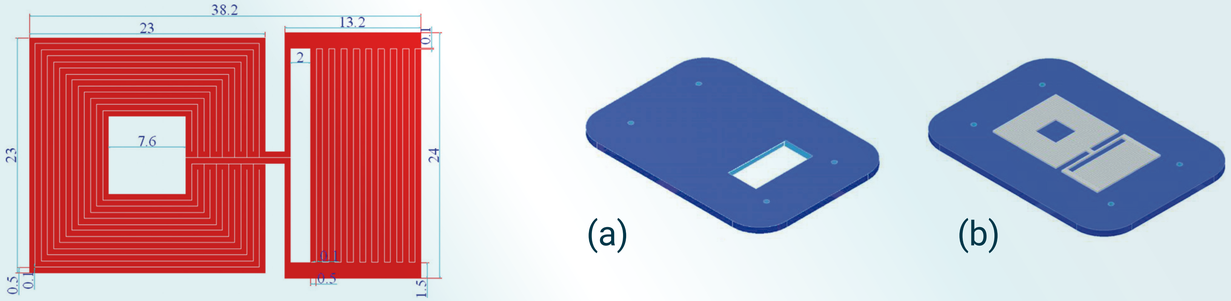
APPLICATION OF A LTCC SENSOR FOR MEASURING MOISTURE CONTENT OF BUILDING MATERIALS

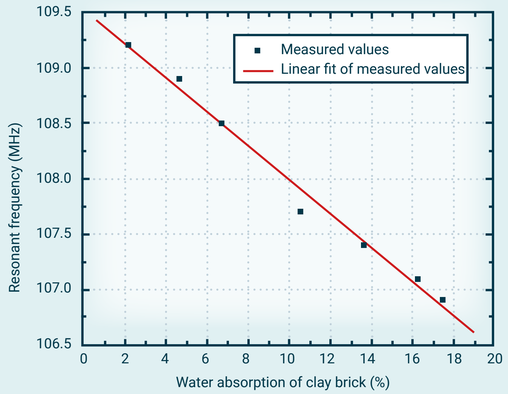
The proposed sensor can be used at the following ways: it can be put into the building material through small cut (made by some saw) for already built walls or it can be buried in the plaster during the building wall process. Sensors were fabricated in Low Temperature Co-fired Ceramic (LTCC) technology.

Variation of the water content in the tested specimens was measured wirelessly, with an antenna coil, tracking changes in the sensor resonant frequency.

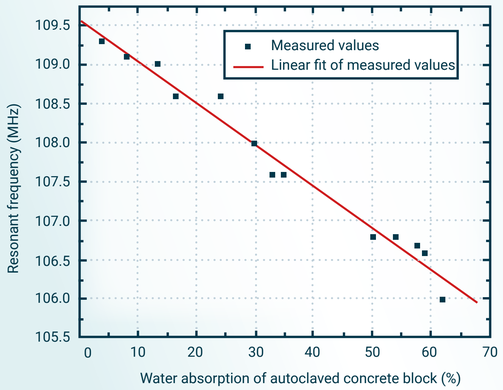
Exploded view of the LC sensor design. (a) Upper dielectric layer with open window. (b) Conductive layer placed on the bottom dielectric layer.



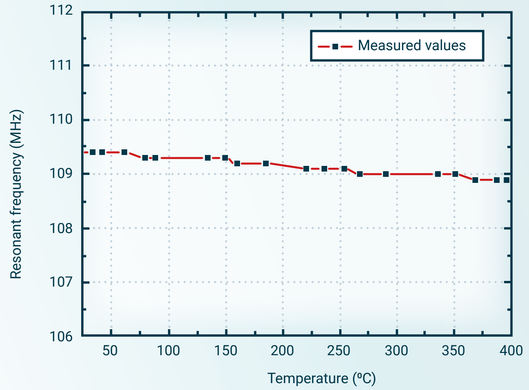
The resonant frequency of the LC sensor as a function of moisture content of the clay brick.



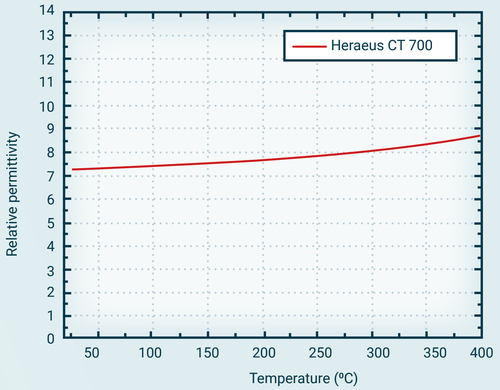
The resonant frequency of the LC sensor as a function of moisture content of the autoclaved aerated concrete block.



Dependence of the resonant frequency of the LC sensor at elevated temperatures.



The relative permittivity as a function of temperature for material Heraeus CT 700



M. Maksimović, **G. Stojanović**, M. Radovanović, M. Malešev, V. Radonjanin, G. Radosavljević, W. Smetana, "Application of a LTCC sensor for measuring moisture content of building materials", *Construction and Building Materials* (IF: 1.834), vol. 26, no. 1, pp. 327-333, 2012, ISSN: 0950-0618, https://doi:10.1016/j.conbuildmat.2011.06.029.