

ACOUSTICS2008/788

Field measurements of acoustic performance in buildings: a Round Robin Test

Fabio Scamoni^a, Maurizio Bassanino^b, Giuseppe Bruno^c and Giovanni Zambon^d

^aConstruction Technologies Institute of Italian National Research Council, Viale Lombardia, 49, 20098 San Giuliano Milanese (MI), Italy

^bARPA Lombardy - Air and Physical Agents, 3/1, Viale F. Restelli, 20124 Milan, Italy

^cLombardy Region - Environmental Quality, Via Pola, 14, 20124 Milan, Italy

^dDepartment of Environmental Sciences of the University of Milano - Bicocca, Piazza della Scienza, 1, 20126 Milan, Italy

This paper presents the experimental results of a round robin test performed on the same building by different teams working with three independent bodies: a research body, ITC-CNR, a university laboratory DISAT and the Regional Agency for Environment Protection of Lombardy, ARPA. A partition wall (the airborne sound insulation between rooms), a floor (the impact sound insulation between rooms) and a façade (the insulation of the façade against outdoor sound) were tested, using the measurement methods given in the relevant parts of the ISO 140 series. The accuracy of acoustic measurement methods in buildings depends on many factors. In this round robin test, the situation (varying from straightforward rectangular rooms to half open spaces with all kind of shapes) and the construction details were kept fix. The analysis was aimed at investigating the influence of the operating condition of the equipment (repeatable settings) and the reproducibility, using different types of acoustic instrumentation and varying the method (choice of source and microphone positions). In particular the tolerance limits in the verification of the requirements of tender specifications were investigated.