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Non-destructive testing — Acoustic emission testing — Measurement method for acoustic emission signals in concrete

Essais non destructifs — Contrôle par émission acoustique — Méthode de mesure pour les signaux d'émission acoustique dans le béton

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Foreword

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This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 9, *Acoustic emission testing*.

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Introduction

Acoustic emission (AE) techniques have been investigated in concrete engineering for more than a half century. Nowadays, results of AE research are put to practical use for infrastructures, not only concrete structures, but also masonry structures.

Concrete structures can deteriorate due to heavy traffic loads, fatigue, chemical reactions and unpredictable disasters, although concrete structures have long been referred to as maintenance-free. Eventually, retrofit and rehabilitation of the structures are in heavy demand all over the world. It results in the need for the development of advanced and effective inspection techniques prior to repair work. In this regard, AE techniques have been extensively studied in concrete engineering.

Focusing on crack detection and damage evaluation, it is known that AE techniques are prospectively applicable to concrete and concrete structures. Therefore, basic aspects on the measurement method for AE signals in concrete are prescribed. AE is an inspection technique, by which elastic waves due to cracking and damage in concrete are detected. Since AE phenomena are to be observed under in-service conditions, AE measurement can be conducted not only in a laboratory, but also on site.