

ABSTRACT

The invention concerns a process for locating and measuring
5 deformation in a civil engineering structure, characterised by the fact that
at least one geosynthetic fabric (1) containing a plurality of optical fibres
(2a to 2e) in parallel and capable of transmitting signals is applied in the
said structure or under the said structure,
the said optical fibres containing Bragg gratings (3), evenly
10 spaced in series (4) of N1 consecutive gratings that correspond to the
same wavelength, the said series being themselves distributed in identical
sets, each of which contains N2 consecutive series that correspond to the
different wavelengths, and by the fact that, in at least two optical fibres,
the numbers N1 of gratings of a series and the numbers N2 of series (4) of
15 a set (5) are determined in such a way that the measurement of the
differences between the wavelengths of the incident light transmitted in
each of the said optical fibres and the wavelengths of the light reflected by
the Bragg gratings enable to locate the deformations to which the
structure is subjected on the one hand and, on the other, to measure the
20 elongation of the said optical fibres where the deformation occurs.

Figure 1