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ABSTRACT

A system 100 to detect change in electromagnetic waves 108 patterns in a metallic structure 102 can includes one or more exciter coils 104 to generates electromagnetic waves; and one or more detector coils 106 placed within a predefined distance from the one or more exciter
5 coils 104 in a field of interest within the metallic structure 102 which is a pipe/tube/plate made of ferrous and alike materials, such that any change in electromagnetic wave 108 pattern indicates any deterioration including early in the metallic structure 102 at atomic level likely to lead towards development of crack. The field of interest 204 is a transition field, defined as the field between a near field 202 and a remote field 206. The distance between the
10 one or more exciter coils 104 and the one or more detector coils 106, are kept between 40mm to 90mm. The variable parameters include change in voltage and frequency of the current.