

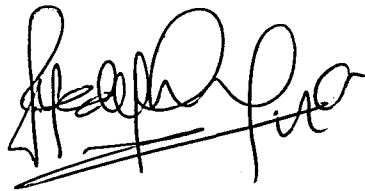
**THE EVALUATION OF ALTERNATING CURRENT FIELD MEASUREMENT(ACFM)
RESPONSE ON STAINLESS STEEL PIPE SURFACE DEFECT**

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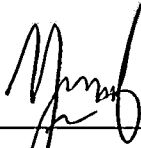
**Final Year Project Report Submitted in
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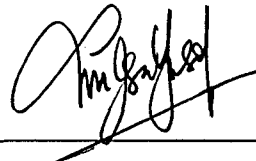
This Final Year Project Report entitled “The Evaluation of Alternating Current Field Measurement (ACFM) Response On Stainless Steel Pipe Surface Defect” was submitted by Mohd Fareez bin Ismail, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Industrial Physics, in the Faculty of Applied Sciences, and was approved by



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ABSTRACT

Recently a new technique for the detection and sizing of cracks and defects has been introduced in Australia. The alternating current field measurement (ACFM) technique is an electromagnetic inspection method that uses hand-held probes, and computerized control, data acquisition and computational models. ACFM is more efficient than conventional inspection methods (e.g. UT, MT, RT) due to a reduced need for surface preparation and an ability to work through surface coatings. ACFM also has an added benefit that it is not only capable of detecting flaws; it can also size defects for length and depth. This report describes the principles of the a.c. field measurement technique, a non-contacting electromagnetic method of crack detection and sizing the depth of defect and length of defect in metals. The metal that used is stainless steel pipe. Otherwise, I'm also have done to prepare the calibration block following ASME Code Section V article 15 2007. The Alternating Current Field Measurement (ACFM) technique has been developed for the accurate detection and sizing of defects through coatings. To do this we would need to know both the length and depth of the defects. Knowing the dimensions of the defect, along with fracture mechanics, we can determine if the component tested is safe for continued operation. ACFM saves the cost of buffing and recoating, and due to the mobility of the newer units, makes it an ideal technique. Using rope access methods can also save on the cost of building scaffolding. Based on this experiment, we want to know the capability of ACFM technique which is how about its performance and how maximum depth that can detect by ACFM machine. I'm only wanted to focus on the depth of defect, so the length of defect was fixed about 15mm.