WIWAT SIDHISORADEJ, POLICE SUBLIEUTENANT : IMAGE PROCESSING FROM NMR SIGNAL. THESIS ADVISOR : ASSOCIATE PROFRESSOR WIJIT SENGHAPHAN, Ph.D., 281 PP.

The aim of this research is to study and develop techniques of image processing from NMR (Nuclear Magnetic Resonance) signal . Data creation for imaging was done by placing samples in a static magnetic field having an intensity of 0.23 Tesla then adding an alternating magnetic field of 10.3 MHz resonance frequency , while at the same time making the static field a linear gradient in different directions according to the method of two dimensional image. When this signal was recorded and calculated by Fast Fourier Transform techniques it rendered data which could represent the proton density of different position in the samples . The techniques of image display was also developed to use for displaying images which resulted from calculation

Three test tubes holding water were used as samples and the distribution of proton density in water was measured , using the resonance frequency of 10.3 MHz .

It was found that when the signal was subjected to Fourier Transforms process and the absolute value of the results were used in image display , it could be seen that the images showed that there were three proton density groups aligning in the same patterns as the three test tubes used in the experiment .