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SUPACHAI HATONGKUM : MAGNETIC FIELD SHIMMING FOR NMR IMAGING. THESIS ADVISOR : ASSO. PROF. WIJIT SENGHAPHAN. Ph.D. 47 pp. ISBN 974-583-030-5

This research has an objective to shim the magnetic field for air gap electromagnet with 25 cm pole-face and 6.1 cm gap at 10.0 MHz resonant frequency or 0.23 tesla. The method is by attaching the iron rings on the pole edges with 30 cm cutter diameter. 15 - 20 and 25 cm inner diameter. From this method. when use 20 and 25 cm inner diameter rings the magnetic field was found to be improved in homogineity around the center.

For Hahn-spin echo pulse NMR thechnique was used to map the field. It is done by finding the beat frequency of the resonant frequency and reference of the echo signal. We make a new pulse generator that can be controlled 90 degree pulse in 5 - 100 microsecond and 180 degree pulse in 1-600 microsecond. We also make a new probe which has dimention less than 1 cm to detect magnetic field accurately. The probe has good noise signal shielding. Using the single coil which was made by wrapping No. 20 0.5 cm diameter 15 turns to receive and transmit NMR signal. The probe which has about 2.3 $cm^3$ oil sample can show the NMR signal more cleary.