

Design and Construction of a Permanent Magnet System for a Free Radical Imaging

The aim of this work was to design and build a permanent magnet system with uniform magnetic fields for a free radical imaging system. The magnet system was composed of 50 small permanent magnet cubes. The dimension of a magnet cube is 40 mm x 40 mm x 40 mm. Each piece was placed on two steel plates with dimension of 0.9 cm x 60 cm x 75 cm, which were separated by a space 3 cm and placed in parallel to each other with 40 cm distance. From experimental results, by measuring at the center between plates, the measured magnetic field was 42 mT with a field inhomogeneity of 0.038 ppm, useful for a main magnet in our free radical imaging system.

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Track Classification: Instrumentation, Metrology and Standards