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Underground Wireless Communications Using High-Temperature Superconducting Receivers

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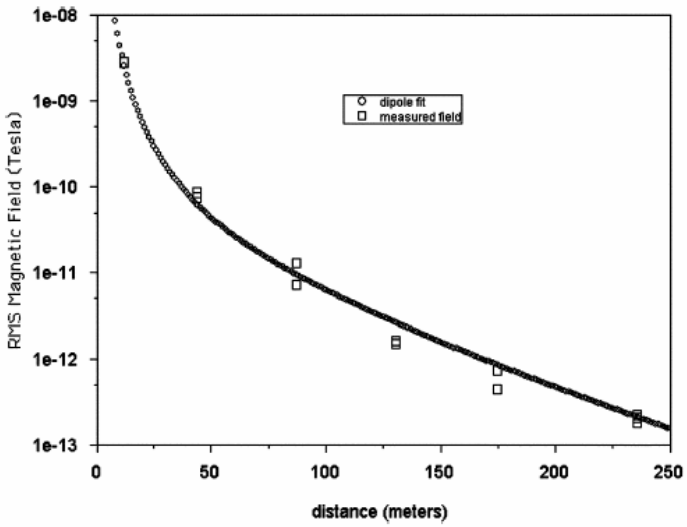

Fig. 2. Magnetic field of a 32-cm-radius small loop antenna as a function of distance when excited with a source of 16.2 W. Measurements were taken at the Molycorp, Inc., facility in Questa, NM. Data is fit to (1.4) by adjusting the resistivity parameter to 100 Ωm.

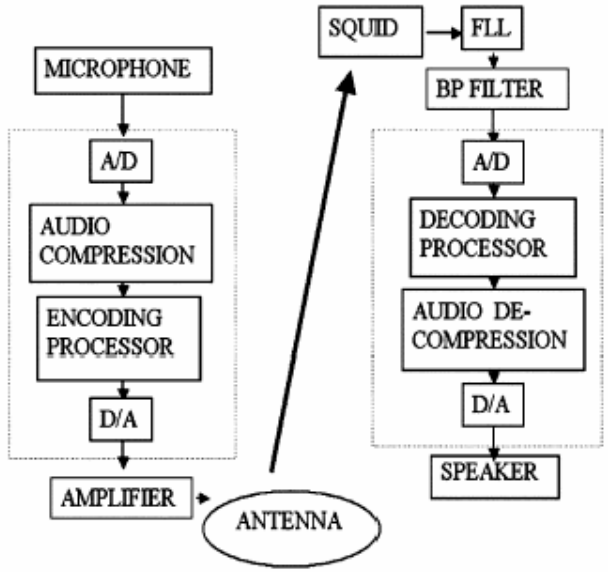

Fig. 4. Block diagram of the underground radio system. Thin dotted line denotes the portion of the system on two identical digital boards. Each board can be operated in transmit or receive mode.