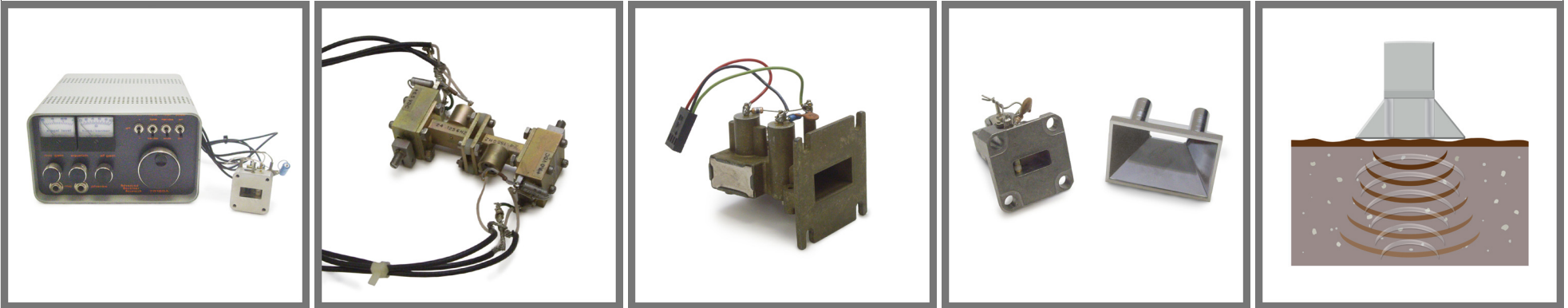


development of

# MODULATED DUAL-BAND (10 ghz/24 ghz) GUNNPLEXER SENSOR for soil moisture and electrical conductivity

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## overview:

Many techniques are used to measure sorbed soil moisture by microwave attenuation and dielectric techniques. However, all use sophisticated and costly measurement instrumentation and have been limited to moisture measurements of bulk flows (such as in cement plants) where large volumes flow by the immobile microwave detection device. The testing of a relatively inexpensive microwave source and detector (Gunn-effect diodes in a resonant cavity, separated by an adsorptive matrix) is underway to produce a small, portable, "in-situ" instrument that can be used at varied depths, such as in agronomic in-field soil moisture studies.