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Technology Transfer Office

Variable Microwave Cold/Warm Noise Source

Researchers at the University of South Florida have developed new methods of an adjustable noise source for calibrating a radiometer.

Radiometers are used to measure thermal radiation or brightness temperatures emitted from a segment of a remote object. Like most sophisticated instrumentation, radiometers require periodic calibration to insure accurate measurements. It is therefore an important task to provide an efficient method for calibrating a radiometer.

USF inventors have successfully developed a radiometer with reference temperatures from an adjustable noise source providing warm and cold radiation temperature signals adjustable in accordance with an input to the adjustable noise source. The process results in reducing power consumption, reducing the requirement for thermal temperature control of the radiometer. The advantage is a type of radiometer having an adjustable cold/warm noise source in a feedback loop to eliminate the effects of receiver gain variation, and bandwidth change with temperature.

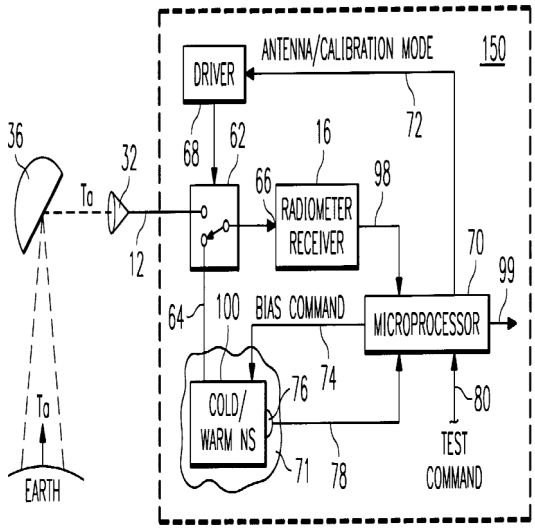
The technology also provides an adjustable noise source for calibrating ground-based, airborne, or satellite-based radiometers.

This technology is applicable to various fields including geoscience, biomedicine, astronomy, aerospace, meteorology, hydrology.

ADVANTAGES:

- **Integrated circuit implementation**
- **Reducing power consumption**
- **Simple calibration**
- **Significant weight reduction**

Method for calibrating radiometer



Schematic representation of the present invention

Tech ID # 95B043 **Patent #: 6,217,210**

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