Abstracts

On-board accurate calibration of dual-channel radiometers using internal and external references

I. Corbella, A.J. Gasiewski, M. Klein, V. Leuski, A.J. Francavilla and J.R. Piepmeier. "On-board accurate calibration of dual-channel radiometers using internal and external references." 2002 Transactions on Microwave Theory and Techniques 50.7 (Jul. 2002 [T-MTT]): 1816-1820.

This paper presents a method for combining internal noise injection and external reference standard looks to accurately calibrate an airborne dual-channel radiometer. The method allows real-time estimation of the correct values of the radiometer gains and offsets, even for nontemperature-stabilized radiometers and with minimum loss of measurement time spent in external load measurement. Crosstalk and leakage introduced by the noise injection circuitry is also taken into account, thus providing high gain and offset estimation accuracy. The method was implemented on a National Oceanic and Atmospheric Administration airborne instrument, the Polarimetric Scanning Radiometer, which was used to obtain an extensive set of radiometric measurements over oceanic convection during CAMEX3 in August-September 1998.

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