Abstracts

The Radiometric Characterization of AMSU-B

R.W. Saunders, T.J. Hewison, S.J. Stringer and N.C. Atkinson. "The Radiometric Characterization of AMSU-B." 1995 Transactions on Microwave Theory and Techniques 43.4 (Apr. 1995, Part I [T-MTT]): 760-771.

The Advanced Microwave Sounding Unit, AMSU, is being developed to fly on the new generation of NOAA polar orbiters due to be launched in the latter half of the 1990's. The U.K. Meteorological Office (UKMO) are procuring the high frequency component of AMSU (AMSU-B) with five channels in the range 88-191 GHz. In order to determine the radiometric performance and verify the method for calibration of AMSU-B an extensive series of tests have been performed by the UKMO on the engineering and three flight models. The instruments were placed in a 3 m thermal-vacuum chamber where their temperature could be controlled over the full range expected in orbit and an Earth target and a space target could be viewed. For the first flight model the measured Ne Delta T values were all <1.1 K at the nominal instrument temperature using a 300 K target. Absolute calibration accuracy and linearity in response were measured to be well within the specification of 1 and 0.3 K, respectively. A small variation in the gain with scan angle was found and an empirical factor was derived to modify the inferred radiances to remove this effect. Measurements of the gain stability for each channel were also measured for simulated in-orbit conditions.

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