Abstracts

Multiband Low-Noise Receivers for a Very Large Array

S. Weinreb, M. Balister, S. Maas and P.J. Napier. "Multiband Low-Noise Receivers for a Very Large Array." 1977 Transactions on Microwave Theory and Techniques 25.4 (Apr. 1977 [T-MTT] (Special Issue on Low-Noise Technology)): 243-248.

The very large array (VLA), presently under construction by the National Radio Astronomy Observatory, is an array of 27 25-m-diam antennas. This paper describes the feed and low-noise, front-end systems used on the antennas. The receiving system allows operation at any one of the four frequency bands: 1.35-1.73 GHz, 4.5-5.0 GHz, 14.4-15.4 GHz, 22-24 GHz. The feed system uses an offset Cassegrain geometry so that the feeds for all four frequency bands can be in position on the antenna simultaneously. The front end comprises a cryogenically cooled parametric amplifier for the 4.5-5.0-GHz range. This paramp is preceded by cooled upconverters or cooled mixers for the other frequency ranges. Measured system performance is presented and some construction details are given.

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